

TIC900.ST25.txt  
SEQUENCE LISTING

&lt;110&gt; Monsanto Technology LLC

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Donovan, William P

Engleman, James T

Malvar, Thomas M

Pitkin, John W

&lt;120&gt; Secreted Insecticidal Protein and Gene Compositions From Bacillus thuringiensis and Uses Therefor

&lt;130&gt; 38-21(52949)

&lt;150&gt; 60/529,917

&lt;151&gt; 2003-12-16

&lt;160&gt; 32

&lt;170&gt; PatentIn version 3.1

&lt;210&gt; 1

&lt;211&gt; 18

&lt;212&gt; PRT

&lt;213&gt; Bacillus thuringiensis

&lt;220&gt;

&lt;221&gt; MISC\_FEATURE

&lt;222&gt; (1)..(1)

&lt;223&gt; unknown amino acid

&lt;220&gt;

&lt;221&gt; MISC\_FEATURE

&lt;222&gt; (15)..(15)

&lt;223&gt; unknown amino acid

TIC900.ST25.txt

&lt;220&gt;

&lt;221&gt; MISC\_FEATURE

&lt;222&gt; (18)..(18)

&lt;223&gt; unknown amino acid

&lt;400&gt; 1

Xaa Arg Glu Arg Gly Ser Val Asn Ser Phe Asn Glu Leu Pro Xaa Phe  
1 5 10 15

Asn Xaa

&lt;210&gt; 2

&lt;211&gt; 50

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; oligonucleotide probe WD470

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (1)..(50)

&lt;223&gt; oligonucleotide WD470

&lt;400&gt; 2

tatagagaaa gaggatctgt tgattctttt aatgaattac ctccatttaa

50

&lt;210&gt; 3

&lt;211&gt; 1803

&lt;212&gt; DNA

&lt;213&gt; Bacillus thuringiensis

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(1803)

&lt;223&gt; TIC900

## TIC900.ST25.txt

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<400> 3
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1 5 10 15

gac gcc aat att aat atg gag cgg ttt gat aag aat gat gca ctg gaa      96
Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu
20 25 30

att ggt atg tcc att gta tct gaa ctt att ggt atg att cca ggc gga      144
Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly
35 40 45

aca gct ttg caa ttt gtg ttt aat caa ttg tgg tct cgt tta ggt gat      192
Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp
50 55 60

tct gga tgg aat gcg ttc atg gaa cat gtg gag gaa tta att gat act      240
Ser Gly Trp Asn Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr
65 70 75 80

aaa ata gaa ggg tat gca aaa aat aaa gcc tta tct gaa tta gca ggt      288
Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly
85 90 95

ata caa aga aac ctt gaa aca tat ata caa tta cgt aat gaa tgg gaa      336
Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu
100 105 110

aat gat att gaa aac tca aag gct caa ggt aag gta gct aat tac tat      384
Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr
115 120 125

gaa agt ctt gag cag gcg gtt gaa agg agt atg cct caa ttt gca gtg      432
Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val
130 135 140

ggg aat ttt gaa gta cca ctt tta act gtt tat gtg caa gct gct aat      480
Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn
145 150 155 160

ctt cat tta tta tta tta aga gat gtt tca gtt tat gga aag cgt tgg      528
Leu His Leu Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Arg Trp
165 170 175

gga tgg tcg gag cag aaa att aaa att tat tat gat aga cag att aag      576
Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Arg Gln Ile Lys
180 185 190

tat acc cat gaa tac aca aat cat tgt gta aat tgg tat aat aaa gga      624
Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly
195 200 205

ctt gag aga tta aaa aat aaa ggt tct tct tat caa gat tgg tac aat      672
Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn
210 215 220

tat aat cgt ttc cgt aga gaa atg act ctt act gtt tta gat atc gtt      720
Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val
225 230 235 240

gct tta ttc ccg cac tat gat gta caa act tat cca ata aca acc gtt      768
Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val
245 250 255

gct cag tta aca agg gaa gtt tat acg gat cct tta ctt aat ttt aat      816
Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn
260 265 270

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## TIC900.ST25.txt

cct aaa tta cat tct gtg tct caa tta cct agt ttt agt gac atg gaa Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu 275 280 285	864
aat gca aca att aga act cca cat ctg atg gaa ttt tta aga atg cta Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu 290 295 300	912
aca att tat aca gat tgg tat agt gtg gga aga aac tat tat tgg gga Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly 305 310 315 320	960
gga cat cgc gtg acg tct tac cat gta gga gga gag aat ata aga tca Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser 325 330 335	1008
cct cta tat ggt aga gag gca aat caa gag gtt cct aga gat ttt tat Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr 340 345 350	1056
ttt tat gga ccc gtt ttt aag acg tta tca aag ccg act cta aga cca Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro 355 360 365	1104
tta cag cag cct gca cca gct cct cct ttt aat tta cgt agc tta gag Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu 370 375 380	1152
gga gta gaa ttc cac act tct aca ggt agt ttt atg tat cgt gaa aga Gly Val Glu Phe His Thr Ser Thr Gly Ser Phe Met Tyr Arg Glu Arg 385 390 395 400	1200
gga tcg gta gat tct ttt aat gag tta ccg cct ttt aat cca gtt ggg Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly 405 410 415	1248
tta cct cat aag gta tac agt cac cgt tta tgt cat gca acg ttt gtt Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val 420 425 430	1296
cgt aaa tct ggg acc cct tat tta aca aca ggt gcc atc ttt tct tgg Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp 435 440 445	1344
aca cat cgt agt gct gaa gaa acc aat aca att gaa tca aat att att Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile 450 455 460	1392
acg caa atc ccg tta gta aaa gca tat caa att gga tca ggc act act Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr 465 470 475 480	1440
gta agg aaa gga cca gga ttc aca gga ggg gat ata ctt cga aga aca Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr 485 490 495	1488
ggt cct gga aca ttt gga gat atg aga ata aat att aat gca cca tta Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu 500 505 510	1536
tct gaa aga tat cgt gta agg att cgt tat gct tct acg aca gat tta Ser Glu Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu 515 520 525	1584
caa ttt gtc acg agt att aat ggg gcc acc att aat att ggt aac ttc Gln Phe Val Thr Ser Ile Asn Gly Ala Thr Ile Asn Ile Gly Asn Phe 530 535 540	1632

## TIC900.ST25.txt

cca aaa act att aat aat cta aat act tta ggt tct gag ggc tat aga 1680  
 Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg  
 545 550 555 560

aca gta tcg ttt agt act cca ttt agt ttc tca aat gca caa agc ata 1728  
 Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile  
 565 570 575

ttt aga tta ggt ata caa gca ttt tct gga gtt caa gaa gtt tat gtg 1776  
 Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val  
 580 585 590

gat aaa att gaa ttt att cct gtt gaa 1803  
 Asp Lys Ile Glu Phe Ile Pro Val Glu  
 595 600

<210> 4

<211> 601

<212> PRT

<213> Bacillus thuringiensis

<400> 4

Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser  
 1 5 10 15

Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu  
 20 25 30

Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly  
 35 40 45

Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp  
 50 55 60

Ser Gly Trp Asn Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr  
 65 70 75 80

Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly  
 85 90 95

Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu  
 100 105 110

Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr  
 115 120 125

Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val  
 130 135 140

Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn  
 145 150 155 160

## TIC900.ST25.txt

Leu His Leu Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Arg Trp  
 165 170 175

Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Arg Gln Ile Lys  
 180 185 190

Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly  
 195 200 205

Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn  
 210 215 220

Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val  
 225 230 235 240

Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val  
 245 250 255

Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn  
 260 265 270

Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu  
 275 280 285

Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu  
 290 295 300

Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly  
 305 310 315 320

Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser  
 325 330 335

Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr  
 340 345 350

Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro  
 355 360 365

Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu  
 370 375 380

Gly Val Glu Phe His Thr Ser Thr Gly Ser Phe Met Tyr Arg Glu Arg  
 385 390 395 400

Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly  
 405 410 415

Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val  
 420 425 430

Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp

TIC900.ST25.txt  
445

435

440

Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile  
450 455 460

Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr  
465 470 475 480

Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr  
485 490 495

Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu  
500 505 510

Ser Glu Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu  
515 520 525

Gln Phe Val Thr Ser Ile Asn Gly Ala Thr Ile Asn Ile Gly Asn Phe  
530 535 540

Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg  
545 550 555 560

Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile  
565 570 575

Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val  
580 585 590

Asp Lys Ile Glu Phe Ile Pro Val Glu  
595 600

&lt;210&gt; 5

&lt;211&gt; 1803

&lt;212&gt; DNA

<213> *Bacillus thuringiensis*

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(1803)

&lt;223&gt; TIC402

&lt;400&gt; 5

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Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser  
1 5 10 15

gac gcc aat att aat atg gaa cgg ttt gat aag aat gat gca ctg gaa 96

## TIC900.ST25.txt

Asp	Ala	Asn	Ile	Asn	Met	Glu	Arg	Phe	Asp	Lys	Asn	Asp	Ala	Leu	Glu	
20								25					30			
att	ggt	atg	tcc	att	gta	tct	gaa	ctt	att	ggt	atg	att	cca	ggc	gga	144
Ile	Gly	Met	Ser	Ile	Val	Ser	Glu	Leu	Ile	Gly	Met	Ile	Pro	Gly	Gly	
	35						40					45				
aca	gct	ttg	caa	ttt	gtg	ttt	aat	caa	ttg	tgg	tct	cgt	tta	ggt	gat	192
Thr	Ala	Leu	Gln	Phe	Val	Phe	Asn	Gln	Leu	Trp	Ser	Arg	Leu	Gly	Asp	
	50					55					60					
tct	gga	tgg	aat	gcg	ttc	atg	gaa	cat	gtg	gag	gaa	tta	att	gat	act	240
Ser	Gly	Trp	Asn	Ala	Phe	Met	Glu	His	Val	Glu	Glu	Leu	Ile	Asp	Thr	
	65				70				75					80		
aaa	ata	gaa	ggg	tat	gca	aaa	aat	aaa	gcc	tta	tct	gaa	tta	gca	ggt	288
Lys	Ile	Glu	Gly	Tyr	Ala	Lys	Asn	Lys	Ala	Leu	Ser	Glu	Leu	Ala	Gly	
				85					90					95		
ata	caa	aga	aac	ctt	gaa	aca	tat	ata	caa	tta	cgt	aat	gaa	tgg	gaa	336
Ile	Gln	Arg	Asn	Leu	Glu	Thr	Tyr	Ile	Gln	Leu	Arg	Asn	Glu	Trp	Glu	
			100					105					110			
aat	gat	att	gaa	aac	tca	aag	gct	caa	ggt	aag	gta	gct	aat	tac	tat	384
Asn	Asp	Ile	Glu	Asn	Ser	Lys	Ala	Gln	Gly	Lys	Val	Ala	Asn	Tyr	Tyr	
		115					120					125				
gaa	agt	ctt	gag	cag	gcg	gtt	gaa	agg	agt	atg	cct	caa	ttt	gca	gtg	432
Glu	Ser	Leu	Glu	Gln	Ala	Val	Glu	Arg	Ser	Met	Pro	Gln	Phe	Ala	Val	
	130					135					140					
gag	aat	ttt	gaa	gta	cca	ctt	tta	act	gtc	tat	gtg	caa	gct	gct	aat	480
Glu	Asn	Phe	Glu	Val	Pro	Leu	Leu	Thr	Val	Tyr	Val	Gln	Ala	Ala	Asn	
	145				150					155					160	
ctt	cat	tta	tta	tta	tta	aga	gat	gtt	tca	gtt	tat	gga	aag	tgt	tgg	528
Leu	His	Leu	Leu	Leu	Leu	Arg	Asp	Val	Ser	Val	Tyr	Gly	Lys	Cys	Trp	
				165					170					175		
gga	tgg	tcg	gag	cag	aaa	att	aaa	att	tat	tat	gat	aaa	cag	att	aag	576
Gly	Trp	Ser	Glu	Gln	Lys	Ile	Lys	Ile	Tyr	Tyr	Asp	Lys	Gln	Ile	Lys	
			180					185					190			
tat	acc	cat	gaa	tac	aca	aat	cat	tgt	gta	aat	tgg	tat	aat	aaa	gga	624
Tyr	Thr	His	Glu	Tyr	Thr	Asn	His	Cys	Val	Asn	Trp	Tyr	Asn	Lys	Gly	
		195				200						205				
ctt	gag	aga	tta	aaa	aat	aaa	ggt	tct	tct	tat	caa	gat	tgg	tac	aat	672
Leu	Glu	Arg	Leu	Lys	Asn	Lys	Gly	Ser	Ser	Tyr	Gln	Asp	Trp	Tyr	Asn	
	210					215					220					
tat	aat	cgt	ttc	cgt	aga	gaa	atg	act	ctt	act	gtt	tta	gat	atc	gtt	720
Tyr	Asn	Arg	Phe	Arg	Arg	Glu	Met	Thr	Leu	Thr	Val	Leu	Asp	Ile	Val	
	225				230					235					240	
gct	tta	ttc	ccg	cac	tat	gat	gta	caa	act	tat	cca	ata	aca	acc	gtt	768
Ala	Leu	Phe	Pro	His	Tyr	Asp	Val	Gln	Thr	Tyr	Pro	Ile	Thr	Thr	Val	
				245					250					255		
gct	cag	cta	aca	agg	gaa	gtt	tat	acg	gat	cct	tta	ctt	aat	ttt	aat	816
Ala	Gln	Leu	Thr	Arg	Glu	Val	Tyr	Thr	Asp	Pro	Leu	Leu	Asn	Phe	Asn	
			260					265					270			
cct	aaa	tta	cat	tct	gtg	tct	caa	tta	cct	agt	ttt	agt	gac	atg	gaa	864
Pro	Lys	Leu	His	Ser	Val	Ser	Gln	Leu	Pro	Ser	Phe	Ser	Asp	Met	Glu	
		275					280					285				
aat	gca	aca	att	aga	act	cca	cat	ctg	atg	gaa	ttt	tta	aga	atg	cta	912
Asn	Ala	Thr	Ile	Arg	Thr	Pro	His	Leu	Met	Glu	Phe	Leu	Arg	Met	Leu	

TIC900.ST25.txt  
300

290	295	300	960
aca att tat aca gat tgg tat agt gtg gga aga aac tat tat tgg gga			
Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly			
305	310	315	320
gga cat cgc gtg acg tct tac cat gta gga gga gag aat ata aga tca			1008
Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser			
	325	330	335
cct cta tat ggt aga gag gca aat caa gag gtt cct aga gat ttt tat			1056
Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr			
	340	345	350
ttt tat gga ccc gtt ttt aag acg tta tca aag ccg act cta aga cca			1104
Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro			
	355	360	365
tta cag cag cct gca cca gct cct cct ttt aat tta cgt agc tta gag			1152
Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu			
	370	375	380
gga gta gaa ttc cac act cct aca ggt agt ttt atg tat cgt gaa aga			1200
Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg			
	385	390	400
gga tcg gta gat tct ttt aat gag ttg ccg cct ttt aat cca gtt ggg			1248
Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly			
	405	410	415
tta cct cat aag gta tac agt cac cgt tta tgt cat gca acg ttt gtt			1296
Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val			
	420	425	430
cgt aaa tct ggg acc cct tat tta aca aca ggt gcc atc ttt tct tgg			1344
Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp			
	435	440	445
aca cat cgt agt gct gaa gaa acc aat aca att gaa tca aat att att			1392
Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile			
	450	455	460
acg caa atc ccg tta gta aaa gca tat caa att ggg tca ggc act act			1440
Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr			
	465	470	475
gta agg aaa gga cca gga ttc aca gga ggg gat ata ctt cga aga aca			1488
Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr			
	485	490	495
ggt cct gga aca ttt gga gat atg aga ata aat att aat gca cca tta			1536
Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu			
	500	505	510
tct caa aga tat cgt gta agg att cgt tat gct tct acg aca gat tta			1584
Ser Gln Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu			
	515	520	525
caa ttt gtc acg agt att aat ggg acc acc att aat att ggt aac ttc			1632
Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe			
	530	535	540
ccg aaa act att aat aat cta aat act tta ggt tct gag ggc tat aga			1680
Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg			
	545	550	555
aca gta tcg ttt agt act cca ttt agt ttc tca aat gca caa agc ata			1728
Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile			
	565	570	575

ttt aga tta ggt ata caa gca ttt tct gga gtt caa gaa gtt tat gtg 1776  
Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val  
580 585 590

gat aaa att gaa ttt att cct gtt gaa 1803  
Asp Lys Ile Glu Phe Ile Pro Val Glu  
595 600

<210> 6

<211> 601

<212> PRT

<213> Bacillus thuringiensis

<400> 6

Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser  
1 5 10 15

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20 25 30

Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly  
35 40 45

Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp  
50 55 60

Ser Gly Trp Asn Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr  
65 70 75 80

Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly  
85 90 95

Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu  
100 105 110

Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr  
115 120 125

Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val  
130 135 140

Glu Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn  
145 150 155 160

Leu His Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Cys Trp  
165 170 175

Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Lys Gln Ile Lys  
180 185 190

## TIC900.ST25.txt

Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly  
 195 200 205  
 Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn  
 210 215 220  
 Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val  
 225 230 235 240  
 Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val  
 245 250 255  
 Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn  
 260 265 270  
 Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu  
 275 280 285  
 Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu  
 290 295 300  
 Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly  
 305 310 315 320  
 Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser  
 325 330 335  
 Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr  
 340 345 350  
 Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro  
 355 360 365  
 Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu  
 370 375 380  
 Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg  
 385 390 395 400  
 Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly  
 405 410 415  
 Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val  
 420 425 430  
 Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp  
 435 440 445  
 Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile  
 450 455 460

## TIC900.ST25.txt

Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr  
 465 470 475 480

Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr  
 485 490 495

Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu  
 500 505 510

Ser Gln Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu  
 515 520 525

Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe  
 530 535 540

Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg  
 545 550 555 560

Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile  
 565 570 575

Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val  
 580 585 590

Asp Lys Ile Glu Phe Ile Pro Val Glu  
 595 600

<210> 7

<211> 1803

<212> DNA

<213> *Bacillus thuringiensis*

<220>

<221> CDS

<222> (1)..(1803)

<223> TIC403

<400> 7

atg aat tca aag gaa cat gat tat cta aaa gtt tgt aat gat tta agt	48
Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser	
1 5 10 15	
gac gcc aat att aat atg gag cgg ttt gat aag aat gat gca ctg gaa	96
Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu	
20 25 30	
att ggt atg tcc att gta tct gaa ctt att ggt atg att cca ggc gga	144
Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly	
35 40 45	

TIC900.ST25.txt

aca gct ttg caa ttt gtg ttt aat caa ttg tgg tct cgt tta ggt gat Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp 50 55 60	192
tct gga tgg aat gcg ttc atg gaa cat gtg gag gaa tta att gat act Ser Gly Trp Asn Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr 65 70 75 80	240
aaa ata gaa ggg tat gca aaa aat aaa gcc tta tct gaa tta gca ggt Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly 85 90 95	288
ata caa aga aac ctt gaa aca tat ata caa tta cgt aat gaa tgg gaa Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu 100 105 110	336
aat gat att gaa aac tca aag gct caa ggt aag gta gct aat tac tat Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr 115 120 125	384
gaa agt ctt gag cag gcg gtt gaa agg agt atg cct caa ttt gca gtg Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val 130 135 140	432
ggg aat ttt gaa gta cca ctt tta act gtc tat gtg caa gct gct aat Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn 145 150 155 160	480
ctt cat tta tta tta tta aga gat gtt tca gtt tat gga aag cgt tgg Leu His Leu Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Arg Trp 165 170 175	528
gga tgg tcg gag cag aaa att aaa att tat tat gat aaa cag att aag Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Lys Gln Ile Lys 180 185 190	576
tat acc cat gaa tac aca aat cat tgt gta aat tgg tat aat aaa gga Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly 195 200 205	624
ctt gag aga tta aaa aat aaa ggt tct tct tat caa gat tgg tac aat Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn 210 215 220	672
tat aat cgt ttc cgt aga gaa atg act ctt act gtt tta gat atc gtt Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val 225 230 235 240	720
gct tta ttc ccg cac tat gat gta caa act tat cca ata aca acc gtt Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val 245 250 255	768
gct cag cta aca agg gaa gtt tat acg gat cct tta ctt aat ttt aat Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn 260 265 270	816
cct aaa tta cat cct gtg tct caa tta cct agt ttt agt gac atg gaa Pro Lys Leu His Pro Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu 275 280 285	864
aat gca aca att aga act cca cat ctg atg gaa ttt tta aga atg cta Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu 290 295 300	912
aca att tat aca gat tgg tat agt gtg gga aga aac tat tat tgg gga Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly 305 310 315 320	960
gga cat cgc gtg acg tct tac cat gta gga gga gag aat ata aga tca	1008

## TIC900.ST25.txt

Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser	
325 330 335	
cct cta tat ggt aga gag gca aat caa gag gtt cct aga gat ttt tat	1056
Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr	
340 345 350	
ttt tat gga ccc gtt ttt aag acg tta tca aag ccg act cta aga cca	1104
Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro	
355 360 365	
tta cag cag cct gca cca gct cct cct ttt aat tta cgt agc tta gag	1152
Leu Gln Gln Pro Ala Pro Ala Pro Phe Asn Leu Arg Ser Leu Glu	
370 375 380	
gga gta gaa ttc cac act cct aca ggt agt ttt atg tat cgt gaa aga	1200
Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg	
385 390 395 400	
gga tcg gta gat tct ttt aat gag tta ccg cct ttt aat cca gtt ggg	1248
Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly	
405 410 415	
tta cct cat aag gta tac agt cac cgt tta tgt cat gca acg ttt gtt	1296
Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val	
420 425 430	
cgt aaa tct ggg acc cct tat tta aca aca ggt gcc atc ttt tct tgg	1344
Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp	
435 440 445	
aca cat cgt agt gct gaa gaa acc aat aca att gaa tca aat att att	1392
Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile	
450 455 460	
acg caa atc ccg tta gta aaa gca tat caa att ggg tca ggc act act	1440
Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr	
465 470 475 480	
gta agg aaa gga cca gga ttc aca gga ggg gat ata ctt cga aga aca	1488
Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr	
485 490 495	
ggg cct gga aca ttt gga gat atg aga ata aat att aat gca cca tta	1536
Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu	
500 505 510	
tct caa aga tat cgt gta agg att cgt tat gct tct acg aca gat tta	1584
Ser Gln Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu	
515 520 525	
caa ttt gtc acg agt att aat ggg acc acc att aat att ggt aac ttc	1632
Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe	
530 535 540	
cca aaa act att aat aat cta aat act tta ggt tct gag ggc tat aga	1680
Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg	
545 550 555 560	
aca gta tcg ttt agt acc cca ttt agt ttc tca aat gca caa agc ata	1728
Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile	
565 570 575	
ttt aga tta ggt ata caa gca ttt tct gga gtt caa gaa gtt tat gtg	1776
Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val	
580 585 590	
gat aaa att gaa ttt att cct gtt gaa	1803
Asp Lys Ile Glu Phe Ile Pro Val Glu	

TIC900.ST25.txt

595 600

<210> 8

<211> 601

<212> PRT

<213> Bacillus thuringiensis

<400> 8

Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser  
1 5 10 15

Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu  
20 25 30

Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly  
35 40 45

Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp  
50 55 60

Ser Gly Trp Asn Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr  
65 70 75 80

Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly  
85 90 95

Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu  
100 105 110

Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr  
115 120 125

Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val  
130 135 140

Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn  
145 150 155 160

Leu His Leu Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Arg Trp  
165 170 175

Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Lys Gln Ile Lys  
180 185 190

Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly  
195 200 205

Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn  
210 215 220

## TIC900.ST25.txt

Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val  
 225 230 235 240  
 Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val  
 245 250 255  
 Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn  
 260 265 270  
 Pro Lys Leu His Pro Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu  
 275 280 285  
 Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu  
 290 295 300  
 Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly  
 305 310 315 320  
 Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser  
 325 330 335  
 Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr  
 340 345 350  
 Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro  
 355 360 365  
 Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu  
 370 375 380  
 Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg  
 385 390 395 400  
 Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly  
 405 410 415  
 Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val  
 420 425 430  
 Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp  
 435 440 445  
 Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile  
 450 455 460  
 Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr  
 465 470 475 480  
 Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr  
 485 490 495

## TIC900.ST25.txt

Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu  
500 505 510

Ser Gln Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu  
515 520 525

Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe  
530 535 540

Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg  
545 550 555 560

Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile  
565 570 575

Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val  
580 585 590

Asp Lys Ile Glu Phe Ile Pro Val Glu  
595 600

<210> 9

<211> 1803

<212> DNA

<213> Bacillus thuringiensis

<220>

<221> CDS

<222> (1)..(1803)

<223> TIC404

<400> 9

atg aat tca aag gaa cat gat tat cta aaa gtt tgt aat gat tta agt 48  
Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser  
1 5 10 15

gac gcc aat att aat atg gag cgg ttt gat aag aat gat gca cta gaa 96  
Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu  
20 25 30

att ggc atg tcc att gta tct gaa ctt att ggt atg att cca ggc gga 144  
Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly  
35 40 45

aca gct tta caa ttt gtg ttt aat caa ttg tgg tct cgt tta ggt gat 192  
Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp  
50 55 60

tct gga tgg agt gca ttc atg gaa cat gtg gag gaa tta att gat act 240  
Ser Gly Trp Ser Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr  
65 70 75 80

## TIC900.ST25.txt

aaa ata gaa ggg tat gca aaa aat aaa gcc tca tct gaa tta gca ggt Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Ser Ser Glu Leu Ala Gly 85 90 95	288
ata caa aga aac ctt gaa aca tat ata caa tta cgt aat gca tgg gaa Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Ala Trp Glu 100 105 110	336
aat gat atc gaa aac tca aag gct caa ggt aag gta gct aat tac tat Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr 115 120 125	384
gaa agt ctt gag cag gcg gtt gaa agg agt atg cct caa ttt gca gtg Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val 130 135 140	432
ggg aat ttt gaa gta cca ctt tta act gtt tat gtg caa gct gct aat Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn 145 150 155 160	480
ctt cat ata tta tta tta aga gat gtt cta att tac gga aag cgt tgg Leu His Ile Leu Leu Leu Arg Asp Val Leu Ile Tyr Gly Lys Arg Trp 165 170 175	528
gga tgg tcg gag cag aaa att aaa att tat tat gat aga cag att aag Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Arg Gln Ile Lys 180 185 190	576
tat act cat gaa tac aca aat cat tgt gta aat tgg tat aat aaa ggg Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly 195 200 205	624
ctt gag aga tta aaa aat aaa ggt tct tct tat caa gat tgg tac aat Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn 210 215 220	672
tat aat cgt ttc cgt aga gaa atg act ctt act gtt tta gat atc gtt Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val 225 230 235 240	720
gct tta ttc ccg cac tat gat gta caa act tat cca ata aca acc gtt Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val 245 250 255	768
gct cag cta aca agg gaa gtt tat acg gat cct tta ctt aat ttt aat Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn 260 265 270	816
cct aaa tta cat tct gtg tct caa tta cct agt ttt agt gac atg gaa Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu 275 280 285	864
aat gca aca att aga act cca cat ttg atg gaa ttt tta aga atg tta Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu 290 295 300	912
aca att tat aca gat tgg tat agt gtg gga aga aac tat tat tgg gga Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly 305 310 315 320	960
gga cat cgc gtg acg tct tac cat gta gga gga gag aat ata aga tcc Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser 325 330 335	1008
cct cta tat ggt aga gag gca aat caa gag gtt cct aga gat ttt tat Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr 340 345 350	1056

TIC900.ST25.txt

ttt tat gga ccc gtt ttt aag acg tta tca aaa ccg act cta aga cca	1104
Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro	
355 360 365	
tta cag cag cct gca cca gct cct cct ttt aat tta cgt agc tta gag	1152
Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu	
370 375 380	
gga gta gaa ttc cac act cct aca ggt agt ttt atg tat cgt gaa aga	1200
Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg	
385 390 395 400	
gga tca gta gat tct ttt aat gag tta ccg cct ttt aat cca gtt ggg	1248
Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly	
405 410 415	
tta cct cat aag gta tat agt cac cgt tta tgt cat gca acg ttt gtt	1296
Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val	
420 425 430	
cgt aaa tcg ggg acc cct tat tta aca aca ggt gcc atc ttt act tgg	1344
Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Thr Trp	
435 440 445	
aca cat cgt agt gct gaa gaa acc aat aca att gaa tca aat att att	1392
Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile	
450 455 460	
acg caa atc ccg tta gta aaa gca tat caa att gga tcg ggc act act	1440
Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr	
465 470 475 480	
gta agg aaa gga cca gga ttc acg gga ggg gat ata ctt cgg aga aca	1488
Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr	
485 490 495	
ggt cct gga aca ttt gga gat atg aaa gta aat att cat gca cca tta	1536
Gly Pro Gly Thr Phe Gly Asp Met Lys Val Asn Ile His Ala Pro Leu	
500 505 510	
tcc caa aaa tat cgt gta agg att cgt tat gct tct acg aca gat tta	1584
Ser Gln Lys Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu	
515 520 525	
caa ttt gtc acg agt att aat gga acc acc att aat att ggt aac ttc	1632
Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe	
530 535 540	
cca aaa act act aat aat cta aat act tta ggt tct gag agc tat aga	1680
Pro Lys Thr Thr Asn Asn Leu Asn Thr Leu Gly Ser Glu Ser Tyr Arg	
545 550 555 560	
aca gta tcg ttt agt acg cca ttt agt ttc tca aat gca caa agc ata	1728
Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile	
565 570 575	
ttt aga tta ggt ata caa gca ttt tct gga gtt caa gaa gtt tat gtg	1776
Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val	
580 585 590	
gat aaa att gaa ttt att cct gtt gaa	1803
Asp Lys Ile Glu Phe Ile Pro Val Glu	
595 600	

&lt;210&gt; 10

&lt;211&gt; 601

TIC900.ST25.txt

&lt;212&gt; PRT

&lt;213&gt; Bacillus thuringiensis

&lt;400&gt; 10

Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser  
 1 5 10 15

Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu  
 20 25 30

Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly  
 35 40 45

Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp  
 50 55 60

Ser Gly Trp Ser Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr  
 65 70 75 80

Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Ser Ser Glu Leu Ala Gly  
 85 90 95

Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Ala Trp Glu  
 100 105 110

Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr  
 115 120 125

Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val  
 130 135 140

Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn  
 145 150 155 160

Leu His Ile Leu Leu Leu Arg Asp Val Leu Ile Tyr Gly Lys Arg Trp  
 165 170 175

Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Arg Gln Ile Lys  
 180 185 190

Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly  
 195 200 205

Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn  
 210 215 220

Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val  
 225 230 235 240

Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val

TIC900.ST25.txt

245	250	255
Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn		
260	265	270
Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu		
275	280	285
Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu		
290	295	300
Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly		
305	310	315
Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser		
325	330	335
Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr		
340	345	350
Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro		
355	360	365
Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu		
370	375	380
Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg		
385	390	395
Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly		
405	410	415
Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val		
420	425	430
Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Thr Trp		
435	440	445
Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile		
450	455	460
Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr		
465	470	475
Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr		
485	490	495
Gly Pro Gly Thr Phe Gly Asp Met Lys Val Asn Ile His Ala Pro Leu		
500	505	510
Ser Gln Lys Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu		
515	520	525

## TIC900.ST25.txt

Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe  
530 535 540

Pro Lys Thr Thr Asn Asn Leu Asn Thr Leu Gly Ser Glu Ser Tyr Arg  
545 550 555 560

Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile  
565 570 575

Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val  
580 585 590

Asp Lys Ile Glu Phe Ile Pro Val Glu  
595 600

<210> 11

<211> 1803

<212> DNA

<213> Bacillus thuringiensis

<220>

<221> CDS

<222> (1)..(1803)

<223> TIC961

<400> 11

atg aat tca acg gaa cat gat tat cta aaa gtt tgt aat gat tta agt 48  
Met Asn Ser Thr Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser  
1 5 10 15

gac gcc aat att aat atg gag cgg ttt gat aag aat gat gca ctg gaa 96  
Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu  
20 25 30

att ggt atg tcc att gta tct gaa ctt att ggt atg att cca ggc gga 144  
Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly  
35 40 45

aca gct ttg caa ttt gtg ttt aat caa ttg tgg tct cgt tta ggt gat 192  
Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp  
50 55 60

tct gga tgg aat gcg ttc atg gaa cat gtg gag gaa tta att gat act 240  
Ser Gly Trp Asn Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr  
65 70 75 80

aaa ata gaa ggg tat gca aaa aat aaa gcc tta tct gaa tta gca ggt 288  
Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly  
85 90 95

ata caa aga aac ctt gaa aca tat ata caa tta cgt aat gaa tgg gaa 336  
Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu

TIC900.ST25.txt

100	105	110	
aat gat att gaa aac tca aag gct caa ggt aag gta gct aat tac tat Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr 115 120 125			384
gaa agt ctt gag cag gcg gtt gaa agg agt atg cct caa ttt gca gtg Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val 130 135 140			432
ggg aat ttt gaa gta cca ctt tta act gtc tat gtg caa gct gct aat Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn 145 150 155 160			480
ctt cat tta tta tta tta aga gat gtt tca gtt tat gga aag cgt tgg Leu His Leu Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Arg Trp 165 170 175			528
gga tgg tcg gag cag aaa att aaa att tat tat gat aaa cag att aag Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Lys Gln Ile Lys 180 185 190			576
tat acc cat gaa tac aca aat cat tgt gta aat tgg tat aat aaa gga Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly 195 200 205			624
ctt gag aga tta aaa aat aaa ggt tct tct tat caa gat tgg tac aat Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn 210 215 220			672
tat aat cgt ttc cgt aga gaa atg act ctt act gtt tta gat atc gtt Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val 225 230 235 240			720
gct tta ttc ccg cac tat gat gta caa act tat cca ata aca acc gtt Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val 245 250 255			768
gct cag cta aca agg gaa gtt tat acg gat cct tta ctt aat ttt aat Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn 260 265 270			816
cct aaa tta cat tct gtg tct caa tta cct agt ttt agt gac atg gaa Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu 275 280 285			864
aat gca aca att aga act cca cat ctg atg gaa ttt tta aga atg cta Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu 290 295 300			912
aca att tat aca gat tgg tat agt gtg gga aga aac tat tat tgg gga Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly 305 310 315 320			960
gga cat cgc gtg acg tct tac cat gta gga gga gag aat ata aga tca Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser 325 330 335			1008
cct cta tat ggt aga gag gca aat caa gag gtt cct aga gat ttt tat Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr 340 345 350			1056
ttt tat gga ccc gtt ttt aag acg tta tca aag ccg act cta aga cca Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro 355 360 365			1104
tta cag cag cct gca cca gct cct cct ttt aat tta cgt agc tta gag Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu 370 375 380			1152

## TIC900.ST25.txt

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gga gta gaa ttc cac act cct aca ggt agt ttt atg tat cgt gaa aga 1200
Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg
385 390 395 400

gga tcg gta gat cct ttt aat gag tta ccg cct ttt aat cca gtt ggg 1248
Gly Ser Val Asp Pro Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly
405 410 415

tta cct cat aag gta tac agt cac cgt tta tgt cat gca acg ttt gtt 1296
Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val
420 425 430

cgt aaa tct ggg acc cct tat tta aca aca ggt gcc atc ttt tct tgg 1344
Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp
435 440 445

aca cat cgt agt gct gaa gaa acc aat aca att gaa tca aat att att 1392
Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile
450 455 460

acg caa atc ccg tta gta aaa gca tat caa att ggg tca ggc act act 1440
Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr
465 470 475 480

gta agg aaa gga cca gga ttc aca gga ggg gat ata ctt cga aga aca 1488
Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr
485 490 495

ggt cct gga aca ttt gga gat atg aga ata aat att aat gca cca tta 1536
Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu
500 505 510

tct caa aga tat cgt gta agg att cgt tat gct tct acg aca gat tta 1584
Ser Gln Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu
515 520 525

caa ttt gtc acg agt att aat ggg acc acc att aat att ggt aac ttc 1632
Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe
530 535 540

cca aaa act att aat aat cta aat act tta ggt tct gag ggc tat aga 1680
Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg
545 550 555 560

aca gta tcg ttt agt act cca ttt agt ttc tca aat gca caa agc ata 1728
Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile
565 570 575

ttt aga tta ggt ata caa gca ttt tct gga gtt caa gaa gtt tat gtg 1776
Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val
580 585 590

gat aaa att gaa ttt att cct gtt gaa 1803
Asp Lys Ile Glu Phe Ile Pro Val Glu
595 600

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&lt;210&gt; 12

&lt;211&gt; 601

&lt;212&gt; PRT

&lt;213&gt; Bacillus thuringiensis

&lt;400&gt; 12

## TIC900.ST25.txt

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 1 5 10 15  
 Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu  
 20 25 30  
 Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly  
 35 40 45  
 Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp  
 50 55 60  
 Ser Gly Trp Asn Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr  
 65 70 75 80  
 Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly  
 85 90 95  
 Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu  
 100 105 110  
 Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr  
 115 120 125  
 Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val  
 130 135 140  
 Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn  
 145 150 155 160  
 Leu His Leu Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Arg Trp  
 165 170 175  
 Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Lys Gln Ile Lys  
 180 185 190  
 Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly  
 195 200 205  
 Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn  
 210 215 220  
 Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val  
 225 230 235 240  
 Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val  
 245 250 255  
 Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn  
 260 265 270

## TIC900.ST25.txt

Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu  
 275 280 285

Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu  
 290 295 300

Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly  
 305 310 315 320

Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser  
 325 330 335

Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr  
 340 345 350

Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro  
 355 360 365

Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu  
 370 375 380

Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg  
 385 390 395 400

Gly Ser Val Asp Pro Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly  
 405 410 415

Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val  
 420 425 430

Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp  
 435 440 445

Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile  
 450 455 460

Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr  
 465 470 475 480

Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr  
 485 490 495

Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu  
 500 505 510

Ser Gln Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu  
 515 520 525

Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe  
 530 535 540

Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg

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<210> 13
<211> 1803
<212> DNA
<213> Bacillus thuringiensis

<220>
<221> CDS
<222> (1)..(1803)
<223> TIC962
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TIC900.ST25.txt

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gag	aat	ttt	gaa	gta	cca	ctt	tta	act	gtc	tat	gtg	caa	gct	gct	aat	480	
Glu	Asn	Phe	Glu	Val	Pro	Leu	Leu	Thr	Val	Tyr	Val	Gln	Ala	Ala	Asn	160	
145					150				155								
ctt	cat	tta	tta	tta	tta	aga	gat	gtt	tca	gtt	tat	gga	aag	tgt	tgg	528	
Leu	His	Leu	Leu	Leu	Leu	Arg	Asp	Val	Ser	Val	Tyr	Gly	Lys	Cys	Trp	175	
				165					170								
gga	tgg	tcg	gag	cag	aaa	att	aaa	att	tat	tat	gat	aaa	cag	att	aag	576	
Gly	Trp	Ser	Glu	Gln	Lys	Ile	Lys	Ile	Tyr	Tyr	Asp	Lys	Gln	Ile	Lys	190	
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Tyr	Thr	His	Glu	Tyr	Thr	Asn	His	Cys	Val	Asn	Trp	Tyr	Asn	Lys	Gly	205	
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ctt	gag	aga	tta	aaa	aat	aaa	ggt	tct	tct	tat	caa	gat	tgg	tac	aat	672	
Leu	Glu	Arg	Leu	Lys	Asn	Lys	Gly	Ser	Ser	Tyr	Gln	Asp	Trp	Tyr	Asn	220	
			210			215											
tat	aat	cgt	ttc	cgt	aga	gaa	atg	act	ctt	act	gtt	tta	gat	atc	gtt	720	
Tyr	Asn	Arg	Phe	Arg	Arg	Glu	Met	Thr	Leu	Thr	Val	Leu	Asp	Ile	Val	240	
					230					235							
gct	tta	ttc	ccg	cac	tat	gat	gta	caa	act	tat	cca	ata	aca	acc	gtt	768	
Ala	Leu	Phe	Pro	His	Tyr	Asp	Val	Gln	Thr	Tyr	Pro	Ile	Thr	Thr	Val	255	
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gct	cag	cta	aca	agg	gaa	gtt	tat	acg	gat	cct	tta	ctt	aat	ttt	aat	816	
Ala	Gln	Leu	Thr	Arg	Glu	Val	Tyr	Thr	Asp	Pro	Leu	Leu	Asn	Phe	Asn	270	
			260					265									
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Pro	Lys	Leu	His	Ser	Val	Ser	Gln	Leu	Pro	Ser	Phe	Ser	Asp	Met	Glu	285	
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Asn	Ala	Thr	Ile	Arg	Thr	Pro	His	Leu	Met	Glu	Phe	Leu	Arg	Met	Leu	300	
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Thr	Ile	Tyr	Thr	Asp	Trp	Tyr	Ser	Val	Gly	Arg	Asn	Tyr	Tyr	Trp	Gly	320	
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gga	cat	cgc	gtg	acg	tct	tac	cat	gta	gga	gga	gag	aat	ata	aga	tca	1008	
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Pro	Leu	Tyr	Gly	Arg	Glu	Ala	Asn	Gln	Glu	Val	Pro	Arg	Asp	Phe	Tyr	350	
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Leu	Gln	Gln	Pro	Ala	Pro	Glu	Pro	Pro	Phe	Asn	Leu	Arg	Ser	Leu	Glu	380	
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Gly	Val	Glu	Phe	His	Thr	Pro	Thr	Gly	Ser	Phe	Met	Tyr	Arg	Glu	Arg	400	
					390					395							
gga	tcg	gta	gat	tct	ttt	aat	gag	ttg	ccg	cct	ttt	aat	cca	gtt	ggg	1248	
Gly	Ser	Val	Asp	Ser	Phe	Asn	Glu	Leu	Pro	Pro	Phe	Asn	Pro	Val	Gly		

TIC900.ST25.txt

405	410	415	
tta cct cat aag gta tac agt cac cgt tta tgt cat gca acg ttt gtt			1296
Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val			
420	425	430	
cgt aaa tct ggg acc cct tat tta aca aca ggt gcc atc ttt tct tgg			1344
Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp			
435	440	445	
aca dat cgt agt gct gaa gaa acc aat aca att gaa tca aat att att			1392
Thr His Arg Ser Ala Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile			
450	455	460	
acg caa atc ccg tta gta aaa gca tat caa att ggg tca ggc act act			1440
Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr			
465	470	475	
gta agg aaa gga cca gga ttc aca gga ggg gat ata ctt cga aga aca			1488
Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr			
485	490	495	
ggg cct gga aca ttt gga gat atg aga ata aat att aat gca cca tta			1536
Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu			
500	505	510	
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Ser Gln Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu			
515	520	525	
caa ttt gtc acg agt att aat ggg acc acc att aat att ggt aac ttc			1632
Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe			
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ccg aaa act att aat aat cta aat act tta ggt tct gag ggc tat aga			1680
Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg			
545	550	555	
aca gta tcg ttt agt act cca ttt agt ttc tca aat gca caa agc ata			1728
Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile			
565	570	575	
ttt aga tta ggt ata caa gca ttt tct gga gtt caa gaa gtt tat gtg			1776
Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val			
580	585	590	
gat aaa att gaa ttt att cct gtt gaa			1803
Asp Lys Ile Glu Phe Ile Pro Val Glu			
595	600		

&lt;210&gt; 14

&lt;211&gt; 601

&lt;212&gt; PRT

&lt;213&gt; Bacillus thuringiensis

&lt;400&gt; 14

Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser  
1 5 10 15

Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu  
20 25 30

## TIC900.ST25.txt

Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly  
 35 40 45  
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 50 55 60  
 Ser Gly Trp Asn Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Ala  
 65 70 75 80  
 Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly  
 85 90 95  
 Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu  
 100 105 110  
 Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr  
 115 120 125  
 Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val  
 130 135 140  
 Glu Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn  
 145 150 155 160  
 Leu His Leu Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Cys Trp  
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 Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Lys Gln Ile Lys  
 180 185 190  
 Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly  
 195 200 205  
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 210 215 220  
 Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val  
 225 230 235 240  
 Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val  
 245 250 255  
 Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn  
 260 265 270  
 Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu  
 275 280 285  
 Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu  
 290 295 300

## TIC900.ST25.txt

Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly  
 305 310 315 320  
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 325 330 335  
 Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr  
 340 345 350  
 Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro  
 355 360 365  
 Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu  
 370 375 380  
 Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg  
 385 390 395 400  
 Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly  
 405 410 415  
 Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val  
 420 425 430  
 Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp  
 435 440 445  
 Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile  
 450 455 460  
 Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr  
 465 470 475 480  
 Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr  
 485 490 495  
 Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu  
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 515 520 525  
 Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe  
 530 535 540  
 Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg  
 545 550 555 560  
 Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile  
 565 570 575

## TIC900.ST25.txt

Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val  
 580 585 590

Asp Lys Ile Glu Phe Ile Pro Val Glu  
 595 600

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<211> 1803

<212> DNA

<213> Bacillus thuringiensis

<220>

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<222> (1)..(1803)

<223> TIC963

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 35 40 45

aca gct tta caa ttt gtg ttt aat caa ttg tgg tct cgt tta ggt gat 192  
 Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp  
 50 55 60

tct gga tgg agt gca ttc atg gaa cat gtg gag gaa tta att gat act 240  
 Ser Gly Trp Ser Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr  
 65 70 75 80

aaa ata gaa ggg tat gca aaa aat aaa gcc tta tct gaa tta gca ggt 288  
 Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly  
 85 90 95

ata caa aga aac ctt gaa aca tat ata caa tta cgt aat gca tgg gaa 336  
 Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Ala Trp Glu  
 100 105 110

aat gat atc gaa aac tca aag gct caa ggt aag gta gct aat tac tat 384  
 Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr  
 115 120 125

gaa agt ctt gag cag gcg gtt gaa agg agt atg cct caa tct gca gtg 432  
 Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Ser Ala Val  
 130 135 140

ggg aat ttt gaa gta cca ctt tta act gtt tat gtg caa gct gct aat 480  
 Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn  
 145 150 155 160

## TIC900.ST25.txt

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gga tgg tcg gag cag aaa att aaa att tat tat gat aga cag att aag Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Arg Gln Ile Lys 180 185 190	576
tat act cat gaa tac aca aat cat tgt gta aat tgg tat aat aaa ggg Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly 195 200 205	624
ctt gag aga tta aaa aat aaa ggt tct tct tat caa gat tgg tac aat Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn 210 215 220	672
tat aat cgt ttc cgt aga gaa atg act ctt act gtt tta gat atc gtt Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val 225 230 235 240	720
gct tta ttc ccg cac tat gat gta caa act tat cca ata aca acc gtt Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val 245 250 255	768
gct cag cta aca agg gaa gtt tat acg gat cct tta ctt aat ttt aat Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn 260 265 270	816
cct aaa tta cat tct gtg tct caa tta cct agt ttt agt gac atg gaa Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu 275 280 285	864
aat gca aca att aga act cca cat ttg atg gaa ttt tta aga atg tta Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu 290 295 300	912
aca att tat aca gat tgg tat agt gtg gga aga aac tat tat tgg gga Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly 305 310 315 320	960
gga cat cgc gtg acg tct tac cat gta gga gga gag aat ata aga tcc Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser 325 330 335	1008
cct cta tat ggt aga gag gca aat caa gag gtt cct aga gat ttt tat Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr 340 345 350	1056
ttt tat gga ccc gtt ttt aag acg tta tca aaa ccg act cta aga cca Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro 355 360 365	1104
tta cag cag cct gca cca gct cct cct ttt aat tta cgt agc tta gag Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu 370 375 380	1152
gga gta gaa ttc cac act cct aca ggt agt ttt atg tat cgt gaa aga Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg 385 390 395 400	1200
gga tca gta gat tct ttt aat gag tta ccg cct ttt aat cca gtt ggg Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly 405 410 415	1248
tta cct cat aag gta tat agt cac cgt tta tgt cat gca acg ttt gtt Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val 420 425 430	1296
cgt aaa tcg ggg acc cct tat tta aca aca ggt gcc atc ttt act tgg	1344

## TIC900.ST25.txt

Arg	Lys	Ser	Gly	Thr	Pro	Tyr	Leu	Thr	Thr	Gly	Ala	Ile	Phe	Thr	Trp	
	435						440					445				
aca	cat	cgt	agt	gct	gaa	gaa	acc	aat	aca	att	gaa	tca	aat	att	att	1392
Thr	His	Arg	Ser	Ala	Glu	Glu	Thr	Asn	Thr	Ile	Glu	Ser	Asn	Ile	Ile	
	450					455					460					
acg	caa	atc	ccg	tta	gta	aaa	gca	tat	caa	att	gga	tcg	ggc	act	act	1440
Thr	Gln	Ile	Pro	Leu	Val	Lys	Ala	Tyr	Gln	Ile	Gly	Ser	Gly	Thr	Thr	
	465				470					475					480	
gta	agg	aaa	gga	cca	gga	ttc	acg	gga	ggg	gat	ata	ctt	cgg	aga	aca	1488
Val	Arg	Lys	Gly	Pro	Gly	Phe	Thr	Gly	Gly	Asp	Ile	Leu	Arg	Arg	Thr	
				485					490					495		
ggt	cct	gga	aca	ttt	gga	gat	atg	aaa	gta	aat	att	cat	gca	cca	tta	1536
Gly	Pro	Gly	Thr	Phe	Gly	Asp	Met	Lys	Val	Asn	Ile	His	Ala	Pro	Leu	
			500					505					510			
tcc	caa	aaa	tat	cgt	gta	agg	att	cgt	tat	gct	tct	acg	aca	gat	tta	1584
Ser	Gln	Lys	Tyr	Arg	Val	Arg	Ile	Arg	Tyr	Ala	Ser	Thr	Thr	Asp	Leu	
	515						520					525				
caa	ttt	gtc	acg	agt	att	aat	gga	acc	acc	att	aat	att	ggt	aac	ttc	1632
Gln	Phe	Val	Thr	Ser	Ile	Asn	Gly	Thr	Thr	Ile	Asn	Ile	Gly	Asn	Phe	
	530					535					540					
cca	aaa	act	act	aat	aat	cta	aat	act	tta	ggt	tct	gag	agc	tat	aga	1680
Pro	Lys	Thr	Thr	Asn	Asn	Leu	Asn	Thr	Leu	Gly	Ser	Glu	Ser	Tyr	Arg	
	545				550					555					560	
aca	gta	tcg	ttt	agt	acg	cca	ttt	agt	ttc	tca	aat	gca	caa	agc	ata	1728
Thr	Val	Ser	Phe	Ser	Thr	Pro	Phe	Ser	Phe	Ser	Asn	Ala	Gln	Ser	Ile	
				565					570					575		
ttt	aga	tta	ggt	ata	caa	gca	ttt	tct	gga	gtt	caa	gaa	gtt	tgt	gtg	1776
Phe	Arg	Leu	Gly	Ile	Gln	Ala	Phe	Ser	Gly	Val	Gln	Glu	Val	Cys	Val	
			580					585					590			
gat	aaa	att	gaa	ttt	att	cct	gtt	gaa								1803
Asp	Lys	Ile	Glu	Phe	Ile	Pro	Val	Glu								
	595						600									

&lt;210&gt; 16

&lt;211&gt; 601

&lt;212&gt; PRT

&lt;213&gt; Bacillus thuringiensis

&lt;400&gt; 16

Met	Asn	Ser	Lys	Glu	His	Asp	Tyr	Ile	Lys	Val	Cys	Asn	Asp	Leu	Ser
1				5					10					15	

Asp	Ala	Asn	Ile	Asn	Met	Glu	Arg	Phe	Asp	Lys	Asn	Asp	Ala	Leu	Glu
		20						25					30		

Ile	Gly	Met	Ser	Ile	Val	Ser	Glu	Leu	Ile	Gly	Met	Ile	Pro	Gly	Gly
	35						40					45			

Thr	Ala	Leu	Gln	Phe	Val	Phe	Asn	Gln	Leu	Trp	Ser	Arg	Leu	Gly	Asp
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

TIC900.ST25.txt  
60

50

55

Ser Gly Trp Ser Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr  
 65 70 75 80  
 Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly  
 85 90 95  
 Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Ala Trp Glu  
 100 105 110  
 Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr  
 115 120 125  
 Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Ser Ala Val  
 130 135 140  
 Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn  
 145 150 155 160  
 Leu His Ile Leu Leu Leu Arg Asp Val Leu Ile Tyr Gly Lys Arg Trp  
 165 170 175  
 Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Arg Gln Ile Lys  
 180 185 190  
 Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly  
 195 200 205  
 Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn  
 210 215 220  
 Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val  
 225 230 235 240  
 Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val  
 245 250 255  
 Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn  
 260 265 270  
 Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu  
 275 280 285  
 Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu  
 290 295 300  
 Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly  
 305 310 315 320  
 Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser  
 325 330 335

## TIC900.ST25.txt

Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr  
 340 345 350  
 Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro  
 355 360 365  
 Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu  
 370 375 380  
 Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg  
 385 390 395 400  
 Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly  
 405 410 415  
 Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val  
 420 425 430  
 Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Thr Trp  
 435 440 445  
 Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile  
 450 455 460  
 Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr  
 465 470 475 480  
 Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr  
 485 490 495  
 Gly Pro Gly Thr Phe Gly Asp Met Lys Val Asn Ile His Ala Pro Leu  
 500 505 510  
 Ser Gln Lys Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu  
 515 520 525  
 Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe  
 530 535 540  
 Pro Lys Thr Thr Asn Asn Leu Asn Thr Leu Gly Ser Glu Ser Tyr Arg  
 545 550 555 560  
 Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile  
 565 570 575  
 Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Cys Val  
 580 585 590  
 Asp Lys Ile Glu Phe Ile Pro Val Glu  
 595 600

## TIC900.ST25.txt

&lt;210&gt; 17

&lt;211&gt; 1803

&lt;212&gt; DNA

<213> *Bacillus thuringiensis*

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(1803)

&lt;223&gt; TIC965

&lt;400&gt; 17

atg aat tca acg gaa cat gat tat cta aaa gtt tgt aat gat tta agt	48
Met Asn Ser Thr Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser	
1 5 10 15	
gac gcc aat att aat atg gaa cgg ttt gat aag aat gat gca ctg gaa	96
Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu	
20 25 30	
att ggt atg tcc att gta tct gaa ctt att ggt atg att cca ggc gga	144
Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly	
35 40 45	
aca gct ttg caa ttt gtg ttt aat caa ttg tgg tct cgt tta ggt gat	192
Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp	
50 55 60	
tct gga tgg aat gcg ttc atg gaa cat gtg gag gaa tta att gat act	240
Ser Gly Trp Asn Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr	
65 70 75 80	
aaa ata gaa ggg tat gca aaa aat aaa gcc tta tct gaa tta gca ggt	288
Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly	
85 90 95	
ata caa agg aac ctt gaa aca tat ata caa tta cgt aat gaa tgg gaa	336
Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu	
100 105 110	
aat gat att gaa aac tca aag gct caa ggt aag gta gct aat tac tat	384
Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr	
115 120 125	
gaa agt ctt gag cag gcg gtt gaa agg agt atg cct caa ttt gca gtg	432
Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val	
130 135 140	
gag aat ttt gaa gta cca ctt tta act gtc tat gtg caa gct gct aat	480
Glu Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn	
145 150 155 160	
ctt cat tta tta tta tta aga gat gtt tca gtt tat gga aag tgt tgg	528
Leu His Leu Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Cys Trp	
165 170 175	
gga tgg tcg gag cag aaa att aaa att tat tat gat aaa cag att aag	576
Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Lys Gln Ile Lys	
180 185 190	

## TIC900.ST25.txt

tat acc cat gaa tac aca aat cat tgt gta aat tgg tat aat aaa gga Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly 195 200 205	624
ctt gag aga tta aaa aat aaa ggt tct tct tat caa gat tgg tac aat Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn 210 215 220	672
tat aat cgt ttc cgt aga gaa atg act ctt act gtt tta gat atc gtt Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val 225 230 235 240	720
gct tta ttc ccg cac tat gat gta caa act tat cca ata aca acc gtt Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val 245 250 255	768
gct cag cta aca agg gaa gtt tat acg gat cct tta ctt aat ttt aat Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn 260 265 270	816
cct aaa tta cat tct gtg tct caa tta cct agt ttt agt gac atg gaa Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu 275 280 285	864
aat gca aca att aga act cca cat ctg atg gaa ttt tta aga atg cta Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu 290 295 300	912
aca att tat aca gat tgg tat agt gtg gga aga aac tat tat tgg gga Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly 305 310 315 320	960
gga cat cgc gtg acg tct tac cat gta gga gga gag aat ata aga tca Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser 325 330 335	1008
cct cta tat ggt aga gag gca aat caa gag gtt cct aga gat ttt tat Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr 340 345 350	1056
ttt tat gga ccc gtt ttt aag acg tta tca aag ccg act cta aga cca Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro 355 360 365	1104
tta cag cag cct gca cca gct cct cct ttt aat tta cgt agc tta gag Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu 370 375 380	1152
gga gta gaa ttc cac act cct aca ggt agt ttt atg tat cgt gaa aga Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg 385 390 395 400	1200
gga tcg gta gat tct ttt aat gag ttg ccg cct ttt aat cca gtt ggg Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly 405 410 415	1248
tta cct cat aag gta tac agt cac cgt tta tgt cat gca acg ttt gtt Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val 420 425 430	1296
cgt aaa tct ggg acc cct tat tta aca aca ggt gcc atc ttt tct tgg Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp 435 440 445	1344
aca cat cgt agt gct gaa gaa acc aat aca att gaa tca aat att att Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile 450 455 460	1392

TIC900.ST25.txt

acg	caa	atc	ccg	tta	gta	aaa	gca	tat	caa	att	ggg	tca	ggc	act	act	1440
Thr	Gln	Ile	Pro	Leu	Val	Lys	Ala	Tyr	Gln	Ile	Gly	Ser	Gly	Thr	Thr	
465					470				475						480	
gta	agg	aaa	gga	cca	gga	ttc	aca	gga	ggg	gat	ata	ctt	cga	aga	aca	1488
Val	Arg	Lys	Gly	Pro	Gly	Phe	Thr	Gly	Gly	Asp	Ile	Leu	Arg	Arg	Thr	
			485						490						495	
ggt	cct	gga	aca	ttt	gga	gat	atg	aga	ata	aat	att	aat	gca	cca	tta	1536
Gly	Pro	Gly	Thr	Phe	Gly	Asp	Met	Arg	Ile	Asn	Ile	Asn	Ala	Pro	Leu	
			500					505					510			
tct	caa	aga	tat	cgt	gta	agg	att	cgt	tat	gct	tct	acg	aca	gat	tta	1584
Ser	Gln	Arg	Tyr	Arg	Val	Arg	Ile	Arg	Tyr	Ala	Ser	Thr	Thr	Asp	Leu	
		515					520					525				
caa	ttt	gtc	acg	agt	att	aat	ggg	acc	acc	att	aat	att	ggt	aac	ttc	1632
Gln	Phe	Val	Thr	Ser	Ile	Asn	Gly	Thr	Thr	Ile	Asn	Ile	Gly	Asn	Phe	
		530				535					540					
ccg	aaa	act	att	aat	aat	cta	aat	act	tta	ggt	tct	gag	ggc	tat	aga	1680
Pro	Lys	Thr	Ile	Asn	Asn	Leu	Asn	Thr	Leu	Gly	Ser	Glu	Gly	Tyr	Arg	
					550					555					560	
aca	gta	tcg	ttt	agt	act	cca	ttt	agt	ttc	tca	aat	gca	caa	agc	ata	1728
Thr	Val	Ser	Phe	Ser	Thr	Pro	Phe	Ser	Phe	Ser	Asn	Ala	Gln	Ser	Ile	
				565					570					575		
ttt	aga	tta	ggt	ata	caa	gca	ttt	tct	gga	gtt	caa	gaa	gtt	tat	gtg	1776
Phe	Arg	Leu	Gly	Ile	Gln	Ala	Phe	Ser	Gly	Val	Gln	Glu	Val	Tyr	Val	
			580					585					590			
gat	aaa	att	gaa	ttt	att	cct	gtt	gaa								1803
Asp	Lys	Ile	Glu	Phe	Ile	Pro	Val	Glu								
		595				600										

&lt;210&gt; 18

&lt;211&gt; 601

&lt;212&gt; PRT

&lt;213&gt; Bacillus thuringiensis

&lt;400&gt; 18

Met	Asn	Ser	Thr	Glu	His	Asp	Tyr	Leu	Lys	Val	Cys	Asn	Asp	Leu	Ser
1				5					10					15	
Asp	Ala	Asn	Ile	Asn	Met	Glu	Arg	Phe	Asp	Lys	Asn	Asp	Ala	Leu	Glu
			20					25					30		
Ile	Gly	Met	Ser	Ile	Val	Ser	Glu	Leu	Ile	Gly	Met	Ile	Pro	Gly	Gly
		35					40					45			
Thr	Ala	Leu	Gln	Phe	Val	Phe	Asn	Gln	Leu	Trp	Ser	Arg	Leu	Gly	Asp
	50					55					60				
Ser	Gly	Trp	Asn	Ala	Phe	Met	Glu	His	Val	Glu	Glu	Leu	Ile	Asp	Thr
65					70					75				80	

## TIC900.ST25.txt

Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly  
85. 90 95

Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu  
100 105 110

Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr  
115 120 125

Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val  
130 135 140

Glu Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn  
145 150 155 160

Leu His Leu Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Cys Trp  
165 170 175

Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Lys Gln Ile Lys  
180 185 190

Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly  
195 200 205

Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn  
210 215 220

Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val  
225 230 235 240

Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val  
245 250 255

Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn  
260 265 270

Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu  
275 280 285

Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu  
290 295 300

Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly  
305 310 315 320

Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser  
325 330 335

Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr  
340 345 350

Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro

TIC900.ST25.txt  
365

355

360

Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu  
 370 375 380

Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg  
 385 390 395 400

Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly  
 405 410 415

Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val  
 420 425 430

Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp  
 435 440 445

Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile  
 450 455 460

Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr  
 465 470 475 480

Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr  
 485 490 495

Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu  
 500 505 510

Ser Gln Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu  
 515 520 525

Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe  
 530 535 540

Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg  
 545 550 555 560

Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile  
 565 570 575

Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val  
 580 585 590

Asp Lys Ile Glu Phe Ile Pro Val Glu  
 595 600

&lt;210&gt; 19

&lt;211&gt; 1803

&lt;212&gt; DNA

TIC900.ST25.txt

&lt;213&gt; Bacillus thuringiensis

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(1803)

&lt;223&gt; TIC966

&lt;400&gt; 19

atg aat tca aag gaa cat gat tat cta aaa gtt tgt aat gat tta agt	48
Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser	
1 5 10 15	
gac gcc aat att aat atg gag cgg ttt gat aag aat gat gca ctg gaa	96
Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu	
20 25 30	
att ggt atg tcc att gta tct gaa ctt att ggt atg att cca ggc gga	144
Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly	
35 40 45	
aca gct ttg caa ttt gtg ttt aat caa ttg tgg tct cgt tta ggt gat	192
Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp	
50 55 60	
tct gga tgg aat gcg ttc atg gaa cat gtg gag gaa tta att gat act	240
Ser Gly Trp Asn Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr	
65 70 75 80	
aaa ata gaa ggg tat gca aaa aat aaa gcc tta tct gaa tta gca ggt	288
Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly	
85 90 95	
ata caa aga aac ctt gaa aca tat ata caa tta cgt aat gaa tgg gaa	336
Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu	
100 105 110	
aat gat att gaa aac tca aag gct caa ggt aag gta gct aat tac tat	384
Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr	
115 120 125	
gaa agt ctt gag cag gcg gtt gaa agg agt atg cct caa ttt gca gtg	432
Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val	
130 135 140	
ggg aat ttt gaa gta cca ctt tta act gtc tat gtg caa gct gct aat	480
Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn	
145 150 155 160	
ctt cat tta tta tta tta aga gat gtt tca gtt tat gga aag cgt tgg	528
Leu His Leu Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Arg Trp	
165 170 175	
gga tgg tcg gag cag aaa att aaa att tat tat gat aaa cag att aag	576
Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Lys Gln Ile Lys	
180 185 190	
tat acc cat gaa tac aca aat cat tgt gta aat tgg tat aat aaa gga	624
Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly	
195 200 205	
ctt gag aga tta aaa aat aaa ggt tct tct tat caa gat tgg tac aat	672
Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Tyr Gln Asp Trp Tyr Asn	

TIC900.ST25.txt  
220

210	215		720
tat aat cgt ttc cgt aga gaa atg act ctt act gtt tta gat atc gtt			
Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val			
225	230	235	240
gct tta ttc ccg cac tat gat gta caa act tat cca ata aca acc gtt			768
Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val			
	245	250	255
gct cag cta aca agg gaa gtt tat acg gat cct tta ctt aat ttt aat			816
Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn			
	260	265	270
cct aaa tta cat tct gtg tct caa tta cct agt ttt agt gac atg gaa			864
Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu			
	275	280	285
aat gca aca att aga act cca cat ctg atg gaa ttt tta aga atg cta			912
Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu			
	290	295	300
aca att tat aca gat tgg tat agt gtg gga aga aac tat tat tgg gga			960
Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly			
	310	315	320
gga cat cgc gtg acg tct tac cat gta gga gga gag aat ata aga tca			1008
Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser			
	325	330	335
cct cta tat ggt aga gag gca aat caa gag gtt cct aga gat ttt tat			1056
Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr			
	340	345	350
ttt tat gga ccc gtt ttt aag acg tta tca aag ccg act cta aga cca			1104
Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro			
	355	360	365
tta cag cag cct gca cca gct cct cct ttt aat tta cgt agc tta gag			1152
Leu Gln Gln Pro Ala Pro Ala Pro Phe Asn Leu Arg Ser Leu Glu			
	370	375	380
gga gta gaa ttc cac act cct aca ggt agt ttt atg tat cgt gaa aga			1200
Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg			
	385	390	400
gga tcg gta gat tct ttt aat gag tta ccg cct ttt aat cca gtt ggg			1248
Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly			
	405	410	415
tta cct cat aag gta tac agt cac cgt tta tgt cat gca acg ttt gtt			1296
Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val			
	420	425	430
cgt aaa tct ggg acc cct tat tta aca aca ggt gcc atc ttt tct tgg			1344
Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp			
	435	440	445
aca cat cgt agt gct gaa gaa acc aat aca att gaa tca aat att att			1392
Thr His Arg Ser Ala Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile			
	450	455	460
acg caa atc ccg tta gta aaa gca tat caa att ggg tca ggc act act			1440
Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr			
	465	470	480
gta agg aaa gga cca gga ctc aca gga ggg gat ata ctt cga aga aca			1488
Val Arg Lys Gly Pro Gly Leu Thr Gly Gly Asp Ile Leu Arg Arg Thr			
	485	490	495

## TIC900.ST25.txt

ggt cct gga aca ttt gga gat atg aga ata aat att aat gca cca tta 1536  
 Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu  
 500 505 510  
 tct caa aga tat cgt gta agg att cgt tat gct tct acg aca gat tta 1584  
 Ser Gln Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu  
 515 520 525  
 caa ttt gtc acg agt att aat ggg acc acc att aat att ggt aac ttc 1632  
 Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe  
 530 535 540  
 cca aaa act att aat aat cta aat act tta ggt tct gag ggc tat aga 1680  
 Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg  
 545 550 555 560  
 aca gta tcg ttt agt act cca ttt agt ttc tca aat gca caa agc ata 1728  
 Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile  
 565 570 575  
 ttt aga tta ggt ata caa gca ttt tct gga gtt caa gaa gtt tat gtg 1776  
 Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val  
 580 585 590  
 gat aaa att gaa ttt att cct gtt gaa 1803  
 Asp Lys Ile Glu Phe Ile Pro Val Glu  
 595 600

&lt;210&gt; 20

&lt;211&gt; 601

&lt;212&gt; PRT

&lt;213&gt; Bacillus thuringiensis

&lt;400&gt; 20

Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser  
 1 5 10 15  
 Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu  
 20 25 30  
 Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly  
 35 40 45  
 Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp  
 50 55 60  
 Ser Gly Trp Asn Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr  
 65 70 75 80  
 Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly  
 85 90 95  
 Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu  
 100 105 110

## TIC900.ST25.txt

Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr  
 115 120 125  
 Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val  
 130 135 140  
 Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn  
 145 150 155 160  
 Leu His Leu Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Arg Trp  
 165 170 175  
 Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Lys Gln Ile Lys  
 180 185 190  
 Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly  
 195 200 205  
 Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn  
 210 215 220  
 Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val  
 225 230 235 240  
 Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val  
 245 250 255  
 Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn  
 260 265 270  
 Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu  
 275 280 285  
 Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu  
 290 295 300  
 Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly  
 305 310 315 320  
 Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser  
 325 330 335  
 Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr  
 340 345 350  
 Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro  
 355 360 365  
 Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu  
 370 375 380

## TIC900.ST25.txt

Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Met Tyr Arg Glu Arg  
385 390 395 400

Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly  
405 410 415

Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val  
420 425 430

Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp  
435 440 445

Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile  
450 455 460

Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr  
465 470 475 480

Val Arg Lys Gly Pro Gly Leu Thr Gly Gly Asp Ile Leu Arg Arg Thr  
485 490 495

Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu  
500 505 510

Ser Gln Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu  
515 520 525

Gln Phe Val Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe  
530 535 540

Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg  
545 550 555 560

Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile  
565 570 575

Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val  
580 585 590

Asp Lys Ile Glu Phe Ile Pro Val Glu  
595 600

<210> 21

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> tic900 5' thermal amplification primer

## TIC900.ST25.txt

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (1)..(39)

&lt;223&gt; tic900 5' thermal amplification primer

&lt;400&gt; 21

gcgctagcat gaattcaaag gaacatgatt atctaaaag

39

&lt;210&gt; 22

&lt;211&gt; 41

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; tic900 3' thermal amplification primer

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (1)..(41)

&lt;223&gt; tic900 3' thermal amplification primer

&lt;400&gt; 22

cgggctcgag ctattcaaca ggaataaatt caattttatc c

41

&lt;210&gt; 23

&lt;211&gt; 3504

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; tic109 CDS consisting of CDS for TIC900 linked in frame to CDS for Cry1Ac protoxin

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(3504)

&lt;223&gt; 1-1803 TIC900 toxin domains I-III; 1804-1809 XhoI linker; 1810-3504 Cry1Ac protoxin domain

## TIC900.ST25.txt

```

<400> 23
atg aat tca aag gaa cat gat tat cta aaa gtt tgt aat gat tta agt      48
Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser
1      5      10      15

gac gcc aat att aat atg gag cgg ttt gat aag aat gat gca ctg gaa      96
Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu
      20      25      30

att ggt atg tcc att gta tct gaa ctt att ggt atg att cca ggc gga      144
Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly
      35      40      45

aca gct ttg caa ttt gtg ttt aat caa ttg tgg tct cgt tta ggt gat      192
Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp
      50      55      60

tct gga tgg aat gcg ttc atg gaa cat gtg gag gaa tta att gat act      240
Ser Gly Trp Asn Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr
      65      70      75      80

aaa ata gaa ggg tat gca aaa aat aaa gcc tta tct gaa tta gca ggt      288
Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly
      85      90      95

ata caa aga aac ctt gaa aca tat ata caa tta cgt aat gaa tgg gaa      336
Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu
      100      105      110

aat gat att gaa aac tca aag gct caa ggt aag gta gct aat tac tat      384
Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr
      115      120      125

gaa agt ctt gag cag gcg gtt gaa agg agt atg cct caa ttt gca gtg      432
Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val
      130      135      140

ggg aat ttt gaa gta cca ctt tta act gtt tat gtg caa gct gct aat      480
Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn
      145      150      155      160

ctt cat tta tta tta tta aga gat gtt tca gtt tat gga aag cgt tgg      528
Leu His Leu Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Arg Trp
      165      170      175

gga tgg tcg gag cag aaa att aaa att tat tat gat aga cag att aag      576
Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Arg Gln Ile Lys
      180      185      190

tat acc cat gaa tac aca aat cat tgt gta aat tgg tat aat aaa gga      624
Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly
      195      200      205

ctt gag aga tta aaa aat aaa ggt tct tct tat caa gat tgg tac aat      672
Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn
      210      215      220

tat aat cgt ttc cgt aga gaa atg act ctt act gtt tta gat atc gtt      720
Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val
      225      230      235      240

gct tta ttc ccg cac tat gat gta caa act tat cca ata aca acc gtt      768
Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val
      245      250      255

gct cag tta aca agg gaa gtt tat acg gat cct tta ctt aat ttt aat      816
Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn
      260      265      270

```

## TIC900.ST25.txt

cct aaa tta cat tct gtg tct caa tta cct agt ttt agt gac atg gaa Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu 275 280 285	864
aat gca aca att aga act cca cat ctg atg gaa ttt tta aga atg cta Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu 290 295 300	912
aca att tat aca gat tgg tat agt gtg gga aga aac tat tat tgg gga Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly 305 310 315 320	960
gga cat cgc gtg acg tct tac cat gta gga gga gag aat ata aga tca Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser 325 330 335	1008
cct cta tat ggt aga gag gca aat caa gag gtt cct aga gat ttt tat Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr 340 345 350	1056
ttt tat gga ccc gtt ttt aag acg tta tca aag ccg act cta aga cca Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro 355 360 365	1104
tta cag cag cct gca cca gct cct cct ttt aat tta cgt agc tta gag Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu 370 375 380	1152
gga gta gaa ttc cac act tct aca ggt agt ttt atg tat cgt gaa aga Gly Val Glu Phe His Thr Ser Thr Gly Ser Phe Met Tyr Arg Glu Arg 385 390 395 400	1200
gga tcg gta gat tct ttt aat gag tta ccg cct ttt aat cca gtt ggg Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly 405 410 415	1248
tta cct cat aag gta tac agt cac cgt tta tgt cat gca acg ttt gtt Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val 420 425 430	1296
cgt aaa tct ggg acc cct tat tta aca aca ggt gcc atc ttt tct tgg Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp 435 440 445	1344
aca cat cgt agt gct gaa gaa acc aat aca att gaa tca aat att att Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile 450 455 460	1392
acg caa atc ccg tta gta aaa gca tat caa att gga tca ggc act act Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr 465 470 475 480	1440
gta agg aaa gga cca gga ttc aca gga ggg gat ata ctt cga aga aca Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr 485 490 495	1488
ggt cct gga aca ttt gga gat atg aga ata aat att aat gca cca tta Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu 500 505 510	1536
tct gaa aga tat cgt gta agg att cgt tat gct tct acg aca gat tta Ser Glu Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu 515 520 525	1584
caa ttt gtc acg agt att aat ggg gcc acc att aat att ggt aac ttc Gln Phe Val Thr Ser Ile Asn Gly Ala Thr Ile Asn Ile Gly Asn Phe 530 535 540	1632
cca aaa act att aat aat cta aat act tta ggt tct gag ggc tat aga	1680

TIC900.ST25.txt

Pro	Lys	Thr	Ile	Asn	Asn	Leu	Asn	Thr	Leu	Gly	Ser	Glu	Gly	Tyr	Arg		
545					550					555					560		
aca	gta	tcg	ttt	agt	act	cca	ttt	agt	ttc	tca	aat	gca	caa	agc	ata		1728
Thr	Val	Ser	Phe	Ser	Thr	Pro	Phe	Ser	Phe	Ser	Asn	Ala	Gln	Ser	Ile		
				565					570					575			
ttt	aga	tta	ggt	ata	caa	gca	ttt	tct	gga	ggt	caa	gaa	ggt	tat	gtg		1776
Phe	Arg	Leu		Ile	Gln	Ala	Phe	Ser	Gly	Val	Gln	Glu	Val	Tyr	Val		
			580					585					590				
gat	aaa	att	gaa	ttt	att	cct	ggt	gaa	ctc	gag	gct	gaa	tat	aat	ctg		1824
Asp	Lys	Ile	Glu	Phe	Ile	Pro	Val	Glu	Leu	Glu	Ala	Glu	Tyr	Asn	Leu		
			595				600					605					
gaa	aga	gcg	cag	aag	gcg	gtg	aat	gcg	ctg	ttt	acg	tct	aca	aac	caa		1872
Glu	Arg	Ala	Gln	Lys	Ala	Val	Asn	Ala	Leu	Phe	Thr	Ser	Thr	Asn	Gln		
			610			615					620						
cta	ggg	cta	aaa	aca	aat	gta	acg	gat	tat	cat	att	gat	caa	gtg	tcc		1920
Leu	Gly	Leu	Lys	Thr	Asn	Val	Thr	Asp	Tyr	His	Ile	Asp	Gln	Val	Ser		
					630					635					640		
aat	tta	ggt	acg	tat	tta	tcg	gat	gaa	ttt	tgt	ctg	gat	gaa	aag	cga		1968
Asn	Leu	Val	Thr		Leu	Ser	Asp	Glu	Phe	Cys	Leu	Asp	Glu	Lys	Arg		
				645					650					655			
gaa	ttg	tcc	gag	aaa	gtc	aaa	cat	gcg	aag	cga	ctc	agt	gat	gaa	cgc		2016
Glu	Leu	Ser		Lys	Val	Lys	His	Ala	Lys	Arg	Leu	Ser	Asp	Glu	Arg		
			660					665					670				
aat	tta	ctc	caa	gat	tca	aat	ttc	aaa	gac	att	aat	agg	caa	cca	gaa		2064
Asn	Leu	Leu	Gln	Asp	Ser	Asn	Lys	Asp	Ile	Asn	Arg	Gln	Pro	Glu			
				675			680					685					
cgt	ggg	tgg	ggc	gga	agt	aca	ggg	att	acc	atc	caa	gga	ggg	gat	gac		2112
Arg	Gly	Trp	Gly	Gly	Ser	Thr	Gly	Ile	Thr	Ile	Gln	Gly	Gly	Asp	Asp		
						695					700						
gta	ttt	aaa	gaa	aat	tac	gtc	aca	cta	tca	ggt	acc	ttt	gat	gag	tgc		2160
Val	Phe	Lys	Glu	Asn	Tyr	Val	Thr	Leu	Ser	Gly	Thr	Phe	Asp	Glu	Cys		
					710					715					720		
tat	cca	aca	tat	ttg	tat	caa	aaa	atc	gat	gaa	tca	aaa	tta	aaa	gcc		2208
Tyr	Pro	Thr	Tyr	Leu	Tyr	Gln	Lys	Ile	Asp	Glu	Ser	Lys	Leu	Lys	Ala		
				725					730					735			
ttt	acc	cgt	tat	caa	tta	aga	ggg	tat	atc	gaa	gat	agt	caa	gac	tta		2256
Phe	Thr	Arg	Tyr	Gln	Leu	Arg	Gly	Tyr	Ile	Glu	Asp	Ser	Gln	Asp	Leu		
				740				745					750				
gaa	atc	tat	tta	att	cgc	tac	aat	gca	aaa	cat	gaa	aca	gta	aat	gtg		2304
Glu	Ile	Tyr	Leu	Ile	Arg	Tyr	Asn	Ala	Lys	His	Glu	Thr	Val	Asn	Val		
				755			760					765					
cca	ggt	acg	ggt	tcc	tta	tgg	ccg	ctt	tca	gcc	caa	agt	cca	atc	gga		2352
Pro	Gly	Thr	Gly	Ser	Leu	Trp	Pro	Leu	Ser	Ala	Gln	Ser	Pro	Ile	Gly		
				770			775					780					
aag	tgt	gga	gag	ccg	aat	cga	tgc	gcg	cca	cac	ctt	gaa	tgg	aat	cct		2400
Lys	Cys	Gly	Glu	Pro	Asn	Arg	Cys	Ala	Pro	His	Leu	Glu	Trp	Asn	Pro		
					790				795					800			
gac	tta	gat	tgt	tcg	tgt	agg	gat	gga	gaa	aag	tgt	gcc	cat	cat	tcg		2448
Asp	Leu	Asp	Cys	Ser	Cys	Arg	Asp	Gly	Glu	Lys	Cys	Ala	His	His	Ser		
				805					810					815			
cat	cat	ttc	tcc	tta	gac	att	gat	gta	gga	tgt	aca	gac	tta	aat	gag		2496
His	His	Phe	Ser	Leu	Asp	Ile	Asp	Val	Gly	Cys	Thr	Asp	Leu	Asn	Glu		

## TIC900.ST25.txt

820	825	830	
gac cta ggt gta tgg gtg atc ttt aag att aag acg caa gat ggg cac Asp Leu Gly Val Trp Val Ile Phe Lys Ile Lys Thr Gln Asp Gly His 835 840 845			2544
gca aga cta ggg aat cta gag ttt ctc gaa gag aaa cca tta gta gga Ala Arg Leu Gly Asn Leu Glu Phe Leu Glu Glu Lys Pro Leu Val Gly 850 855 860			2592
gaa gcg cta gct cgt gtg aaa aga gcg gag aaa aaa tgg aga gac aaa Glu Ala Leu Ala Arg Val Lys Arg Ala Glu Lys Lys Trp Arg Asp Lys 865 870 875 880			2640
cgt gaa aaa ttg gaa tgg gaa aca aat atc gtt tat aaa gag gca aaa Arg Glu Lys Leu Glu Trp Glu Thr Asn Ile Val Tyr Lys Glu Ala Lys 885 890 895			2688
gaa tct gta gat gct tta ttt gta aac tct caa tat gat caa tta caa Glu Ser Val Asp Ala Leu Phe Val Asn Ser Gln Tyr Asp Gln Leu Gln 900 905 910			2736
gcg gat acg aat att gcc atg att cat gcg gca gat aaa cgt gtt cat Ala Asp Thr Asn Ile Ala Met Ile His Ala Ala Asp Lys Arg Val His 915 920 925			2784
agc att cga gaa gct tat ctg cct gag ctg tct gtg att ccg ggt gtc Ser Ile Arg Glu Ala Tyr Leu Pro Glu Leu Ser Val Ile Pro Gly Val 930 935 940			2832
aat gcg gct att ttt gaa gaa tta gaa ggg cgt att ttc act gca ttc Asn Ala Ala Ile Phe Glu Glu Leu Glu Gly Arg Ile Phe Thr Ala Phe 945 950 955 960			2880
tcc cta tat gat gcg aga aat gtc att aaa aat ggt gat ttt aat aat Ser Leu Tyr Asp Ala Arg Asn Val Ile Lys Asn Gly Asp Phe Asn Asn 965 970 975			2928
ggc tta tcc tgc tgg aac gtg aaa ggg cat gta gat gta gaa gaa caa Gly Leu Ser Cys Trp Asn Val Lys Gly His Val Asp Val Glu Glu Gln 980 985 990			2976
aac aac caa cgt tcg gtc ctt gtt gtt ccg gaa tgg gaa gca gaa gtg Asn Asn Gln Arg Ser Val Leu Val Val Pro Glu Trp Glu Ala Glu Val 995 1000 1005			3024
tca caa gaa gtt cgt gtc tgt ccg ggt cgt ggc tat atc ctt cgt Ser Gln Glu Val Arg Val Cys Pro Gly Arg Gly Tyr Ile Leu Arg 1010 1015 1020			3069
gtc aca gcg tac aag gag gga tat gga gaa ggt tgc gta acc att Val Thr Ala Tyr Lys Glu Gly Tyr Gly Glu Gly Cys Val Thr Ile 1025 1030 1035			3114
cat gag atc gag aac aat aca gac gaa ctg aag ttt agc aac tgc His Glu Ile Glu Asn Asn Thr Asp Glu Leu Lys Phe Ser Asn Cys 1040 1045 1050			3159
gta gaa gag gaa atc tat cca aat aac acg gta acg tgt aat gat Val Glu Glu Glu Ile Tyr Pro Asn Asn Thr Val Thr Cys Asn Asp 1055 1060 1065			3204
tat act gta aat caa gaa gaa tac gga ggt gcg tac act tct cgt Tyr Thr Val Asn Gln Glu Glu Tyr Gly Gly Ala Tyr Thr Ser Arg 1070 1075 1080			3249
aat cga gga tat aac gaa gct cct tcc gta cca gct gat tat gcg Asn Arg Gly Tyr Asn Glu Ala Pro Ser Val Pro Ala Asp Tyr Ala 1085 1090 1095			3294

## TIC900.ST25.txt

tca gtc	tat gaa gaa aaa	tcg	tat aca gat gga cga	aga gag aat	3339
Ser Val	Tyr Glu Glu Lys	Ser	Tyr Thr Asp Gly Arg	Arg Glu Asn	
1100		1105		1110	
cct tgt	gaa ttt aac aga	ggg	tat agg gat tac acg	cca cta cca	3384
Pro Cys	Glu Phe Asn Arg	Gly	Tyr Arg Asp Tyr Thr	Pro Leu Pro	
1115		1120		1125	
gtt ggt	tat gtg aca aaa	gaa	tta gaa tac ttc cca	gaa acc gat	3429
Val Gly	Tyr Val Thr Lys	Glu	Leu Glu Tyr Phe Pro	Glu Thr Asp	
1130		1135		1140	
aag gta	tgg att gag att	gga	gaa acg gaa gga aca	ttt atc gtg	3474
Lys Val	Trp Ile Glu Ile	Gly	Glu Thr Glu Gly Thr	Phe Ile Val	
1145		1150		1155	
gac agc	gtg gaa tta ctc	ctt	atg gag gaa		3504
Asp Ser	Val Glu Leu Leu	Leu	Met Glu Glu		
1160		1165			

&lt;210&gt; 24

&lt;211&gt; 1168

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; tic109 CDS consisting of CDS for TIC900 linked in frame to CDS for Cry1Ac protoxin

&lt;400&gt; 24

Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser
1 5 10 15

Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu
20 25 30

Ile Gly Met Ser Ile Val Ser Glu Leu Ile Gly Met Ile Pro Gly Gly
35 40 45

Thr Ala Leu Gln Phe Val Phe Asn Gln Leu Trp Ser Arg Leu Gly Asp
50 55 60

Ser Gly Trp Asn Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr
65 70 75 80

Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly
85 90 95

Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu
100 105 110

Asn Asp Ile Glu Asn Ser Lys Ala Gln Gly Lys Val Ala Asn Tyr Tyr
115 120 125

## TIC900.ST25.txt

Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val  
 130 135 140  
 Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn  
 145 150 155 160  
 Leu His Leu Leu Leu Leu Arg Asp Val Ser Val Tyr Gly Lys Arg Trp  
 165 170 175  
 Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Arg Gln Ile Lys  
 180 185 190  
 Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly  
 195 200 205  
 Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn  
 210 215 220  
 Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val  
 225 230 235 240  
 Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val  
 245 250 255  
 Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn  
 260 265 270  
 Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu  
 275 280 285  
 Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu  
 290 295 300  
 Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly  
 305 310 315 320  
 Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser  
 325 330 335  
 Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr  
 340 345 350  
 Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro  
 355 360 365  
 Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu  
 370 375 380  
 Gly Val Glu Phe His Thr Ser Thr Gly Ser Phe Met Tyr Arg Glu Arg  
 385 390 395 400

## TIC900.ST25.txt

Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro Val Gly  
 405 410 415  
 Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val  
 420 425 430  
 Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp  
 435 440 445  
 Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile  
 450 455 460  
 Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr  
 465 470 475 480  
 Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr  
 485 490 495  
 Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu  
 500 505 510  
 Ser Glu Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu  
 515 520 525  
 Gln Phe Val Thr Ser Ile Asn Gly Ala Thr Ile Asn Ile Gly Asn Phe  
 530 535 540  
 Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly Tyr Arg  
 545 550 555 560  
 Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln Ser Ile  
 565 570 575  
 Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val  
 580 585 590  
 Asp Lys Ile Glu Phe Ile Pro Val Glu Leu Glu Ala Glu Tyr Asn Leu  
 595 600 605  
 Glu Arg Ala Gln Lys Ala Val Asn Ala Leu Phe Thr Ser Thr Asn Gln  
 610 615 620  
 Leu Gly Leu Lys Thr Asn Val Thr Asp Tyr His Ile Asp Gln Val Ser  
 625 630 635 640  
 Asn Leu Val Thr Tyr Leu Ser Asp Glu Phe Cys Leu Asp Glu Lys Arg  
 645 650 655  
 Glu Leu Ser Glu Lys Val Lys His Ala Lys Arg Leu Ser Asp Glu Arg  
 660 665 670

## TIC900.ST25.txt

Asn Leu Leu Gln Asp Ser Asn Phe Lys Asp Ile Asn Arg Gln Pro Glu  
 675 680 685  
 Arg Gly Trp Gly Gly Ser Thr Gly Ile Thr Ile Gln Gly Gly Asp Asp  
 690 695 700  
 Val Phe Lys Glu Asn Tyr Val Thr Leu Ser Gly Thr Phe Asp Glu Cys  
 705 710 715 720  
 Tyr Pro Thr Tyr Leu Tyr Gln Lys Ile Asp Glu Ser Lys Leu Lys Ala  
 725 730 735  
 Phe Thr Arg Tyr Gln Leu Arg Gly Tyr Ile Glu Asp Ser Gln Asp Leu  
 740 745 750  
 Glu Ile Tyr Leu Ile Arg Tyr Asn Ala Lys His Glu Thr Val Asn Val  
 755 760 765  
 Pro Gly Thr Gly Ser Leu Trp Pro Leu Ser Ala Gln Ser Pro Ile Gly  
 770 775 780  
 Lys Cys Gly Glu Pro Asn Arg Cys Ala Pro His Leu Glu Trp Asn Pro  
 785 790 795 800  
 Asp Leu Asp Cys Ser Cys Arg Asp Gly Glu Lys Cys Ala His His Ser  
 805 810 815  
 His His Phe Ser Leu Asp Ile Asp Val Gly Cys Thr Asp Leu Asn Glu  
 820 825 830  
 Asp Leu Gly Val Trp Val Ile Phe Lys Ile Lys Thr Gln Asp Gly His  
 835 840 845  
 Ala Arg Leu Gly Asn Leu Glu Phe Leu Glu Glu Lys Pro Leu Val Gly  
 850 855 860  
 Glu Ala Leu Ala Arg Val Lys Arg Ala Glu Lys Lys Trp Arg Asp Lys  
 865 870 875 880  
 Arg Glu Lys Leu Glu Trp Glu Thr Asn Ile Val Tyr Lys Glu Ala Lys  
 885 890 895  
 Glu Ser Val Asp Ala Leu Phe Val Asn Ser Gln Tyr Asp Gln Leu Gln  
 900 905 910  
 Ala Asp Thr Asn Ile Ala Met Ile His Ala Ala Asp Lys Arg Val His  
 915 920 925  
 Ser Ile Arg Glu Ala Tyr Leu Pro Glu Leu Ser Val Ile Pro Gly Val  
 930 935 940  
 Asn Ala Ala Ile Phe Glu Glu Leu Glu Gly Arg Ile Phe Thr Ala Phe

## TIC900.ST25.txt

945                      950                      955                      960  
 Ser Leu Tyr Asp Ala Arg Asn Val Ile Lys Asn Gly Asp Phe Asn Asn  
                          965                      . 970                      975  
 Gly Leu Ser Cys Trp Asn Val Lys Gly His Val Asp Val Glu Glu Gln  
                          980                      985                      990  
 Asn Asn Gln Arg Ser Val Leu Val Val Pro Glu Trp Glu Ala Glu Val  
                          995                      1000                      1005  
 Ser Gln Glu Val Arg Val Cys Pro Gly Arg Gly Tyr Ile Leu Arg  
                          1010                      1015                      1020  
 Val Thr Ala Tyr Lys Glu Gly Tyr Gly Glu Gly Cys Val Thr Ile  
                          1025                      1030                      1035  
 His Glu Ile Glu Asn Asn Thr Asp Glu Leu Lys Phe Ser Asn Cys  
                          1040                      1045                      1050  
 Val Glu Glu Glu Ile Tyr Pro Asn Asn Thr Val Thr Cys Asn Asp  
                          1055                      1060                      1065  
 Tyr Thr Val Asn Gln Glu Glu Tyr Gly Gly Ala Tyr Thr Ser Arg  
                          1070                      1075                      1080  
 Asn Arg Gly Tyr Asn Glu Ala Pro Ser Val Pro Ala Asp Tyr Ala  
                          1085                      1090                      1095  
 Ser Val Tyr Glu Glu Lys Ser Tyr Thr Asp Gly Arg Arg Glu Asn  
                          1100                      1105                      1110  
 Pro Cys Glu Phe Asn Arg Gly Tyr Arg Asp Tyr Thr Pro Leu Pro  
                          1115                      1120                      1125  
 Val Gly Tyr Val Thr Lys Glu Leu Glu Tyr Phe Pro Glu Thr Asp  
                          1130                      1135                      1140  
 Lys Val Trp Ile Glu Ile Gly Glu Thr Glu Gly Thr Phe Ile Val  
                          1145                      1150                      1155  
 Asp Ser Val Glu Leu Leu Leu Met Glu Glu  
                          1160                      1165

&lt;210&gt; 25

&lt;211&gt; 3510

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

## TIC900.ST25.txt

&lt;220&gt;

<223> tic110 CDS consisting of CDS for Domain I of CrylF linked in frame to CDS for Domain II-III of TIC900 linked in frame to CDS for CrylAc protoxin

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(3510)

<223> CrylF Domain I nt 1-723 (amino acid 1-233); TIC900 Domain II-III nt 724-1809 (amino acid 234-603); CrylAc protoxin domain nt 1810-3510 (amino acid 604-1170)

&lt;400&gt; 25

atg gag aat aat att caa aat caa tgc gta cct tac aat tgt tta aat 48  
Met Glu Asn Asn Ile Gln Asn Gln Cys Val Pro Tyr Asn Cys Leu Asn  
1 5 10 15

aat cct gaa gta gaa ata tta aat gaa gaa aga agt act ggc aga tta 96  
Asn Pro Glu Val Glu Ile Leu Asn Glu Glu Arg Ser Thr Gly Arg Leu  
20 25 30

ccg tta gat ata tcc tta tcg ctt aca cgt ttc ctt ttg agt gaa ttt 144  
Pro Leu Asp Ile Ser Leu Ser Leu Thr Arg Phe Leu Leu Ser Glu Phe  
35 40 45

gtt cca ggt gtg gga gtt gcg ttt gga tta ttt gat tta ata tgg ggt 192  
Val Pro Gly Val Gly Val Ala Phe Gly Leu Phe Asp Leu Ile Trp Gly  
50 55 60

ttt ata act cct tct gat tgg agc tta ttt ctt tta cag att gaa caa 240  
Phe Ile Thr Pro Ser Asp Trp Ser Leu Phe Leu Leu Gln Ile Glu Gln  
65 70 75 80

ttg att gag caa aga ata gaa aca ttg gaa agg aac cgg gca att act 288  
Leu Ile Glu Gln Arg Ile Glu Thr Leu Glu Arg Asn Arg Ala Ile Thr  
85 90 95

aca tta cga ggg tta gca gat agc tat gaa att tat att gaa gca cta 336  
Thr Leu Arg Gly Leu Ala Asp Ser Tyr Glu Ile Tyr Ile Glu Ala Leu  
100 105 110

aga gag tgg gaa gca aat cct aat aat gca caa tta agg gaa gat gtg 384  
Arg Glu Trp Glu Ala Asn Pro Asn Asn Ala Gln Leu Arg Glu Asp Val  
115 120 125

cgt att cga ttt gct aat aca gac gac gct tta ata aca gca ata aat 432  
Arg Ile Arg Phe Ala Asn Thr Asp Asp Ala Leu Ile Thr Ala Ile Asn  
130 135 140

aat ttt aca ctt aca agt ttt gaa atc cct ctt tta tcg gtc tat gtt 480  
Asn Phe Thr Leu Thr Ser Phe Glu Ile Pro Leu Leu Ser Val Tyr Val  
145 150 155 160

caa gcg gcg aat tta cat tta tca cta tta aga gac gct gta tcg ttt 528  
Gln Ala Ala Asn Leu His Leu Ser Leu Leu Arg Asp Ala Val Ser Phe  
165 170 175

ggg cag ggt tgg gga ctg gat ata gct act gtt aat aat cat tat aat 576  
Gly Gln Gly Trp Gly Leu Asp Ile Ala Thr Val Asn Asn His Tyr Asn  
180 185 190

aga tta ata aat ctt att cat aga tat acg aaa cat tgt ttg gac aca 624  
Arg Leu Ile Asn Leu Ile His Arg Tyr Thr Lys His Cys Leu Asp Thr

TIC900.ST25.txt

195	200	205	
tac aat caa gga tta gaa aac tta aga ggt act aat act cga caa tgg Tyr Asn Gln Gly Leu Glu Asn Leu Arg Gly Thr Asn Thr Arg Gln Trp 210 215 220			672
gca aga ttc aat cag ttt agg aga gat tta aca ctt act gta tta gat Ala Arg Phe Asn Gln Phe Arg Arg Asp Leu Thr Leu Thr Val Leu Asp 225 230 235 240			720
atc gtt gct tta ttc ccg cac tat gat gta caa act tat cca ata aca Ile Val Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr 245 250 255			768
acc gtt gct cag tta aca agg gaa gtt tat acg gat cct tta ctt aat Thr Val Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn 260 265 270			816
ttt aat cct aaa tta cat tct gtg tct caa tta cct agt ttt agt gac Phe Asn Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp 275 280 285			864
atg gaa aat gca aca att aga act cca cat ctg atg gaa ttt tta aga Met Glu Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg 290 295 300			912
atg cta aca att tat aca gat tgg tat agt gtg gga aga aac tat tat Met Leu Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr 305 310 315 320			960
tgg gga gga cat cgc gtg acg tct tac cat gta gga gga gag aat ata Trp Gly Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile 325 330 335			1008
aga tca cct cta tat ggt aga gag gca aat caa gag gtt cct aga gat Arg Ser Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp 340 345 350			1056
ttt tat ttt tat gga ccc gtt ttt aag acg tta tca aag ccg act cta Phe Tyr Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu 355 360 365			1104
aga cca tta cag cag cct gca cca gct cct cct ttt aat tta cgt agc Arg Pro Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser 370 375 380			1152
tta gag gga gta gaa ttc cac act tct aca ggt agt ttt atg tat cgt Leu Glu Gly Val Glu Phe His Thr Ser Thr Gly Ser Phe Met Tyr Arg 385 390 395 400			1200
gaa aga gga tcg gta gat tct ttt aat gag tta ccg cct ttt aat cca Glu Arg Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro 405 410 415			1248
gtt ggg tta cct cat aag gta tac agt cac cgt tta tgt cat gca acg Val Gly Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr 420 425 430			1296
ttt gtt cgt aaa tct ggg acc cct tat tta aca aca ggt gcc atc ttt Phe Val Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe 435 440 445			1344
tct tgg aca cat cgt agt gct gaa gaa acc aat aca att gaa tca aat Ser Trp Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn 450 455 460			1392
att att acg caa atc ccg tta gta aaa gca tat caa att gga tca ggc Ile Ile Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly 465 470 475 480			1440

## TIC900.ST25.txt

act act gta agg aaa gga cca gga ttc aca gga ggg gat ata ctt cga Thr Thr Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg 485 490 495	1488
aga aca ggt cct gga aca ttt gga gat atg aga ata aat att aat gca Arg Thr Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala 500 505 510	1536
cca tta tct gaa aga tat cgt gta agg att cgt tat gct tct acg aca Pro Leu Ser Glu Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr 515 520 525	1584
gat tta caa ttt gtc acg agt att aat ggg gcc acc att aat att ggt Asp Leu Gln Phe Val Thr Ser Ile Asn Gly Ala Thr Ile Asn Ile Gly 530 535 540	1632
aac ttc cca aaa act att aat aat cta aat act tta ggt tct gag ggc Asn Phe Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly 545 550 555 560	1680
tat aga aca gta tgc ttt agt act cca ttt agt ttc tca aat gca caa Tyr Arg Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln 565 570 575	1728
agc ata ttt aga tta ggt ata caa gca ttt tct gga gtt caa gaa gtt Ser Ile Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val 580 585 590	1776
tat gtg gat aaa att gaa ttt att cct gtt gaa ctc gag gct gaa tat Tyr Val Asp Lys Ile Glu Phe Ile Pro Val Glu Leu Glu Ala Glu Tyr 595 600 605	1824
aat ctg gaa aga gcg cag aag gcg gtg aat gcg ctg ttt acg tct aca Asn Leu Glu Arg Ala Gln Lys Ala Val Asn Ala Leu Phe Thr Ser Thr 610 615 620	1872
aac caa cta ggg cta aaa aca aat gta acg gat tat cat att gat caa Asn Gln Leu Gly Leu Lys Thr Asn Val Thr Asp Tyr His Ile Asp Gln 625 630 635 640	1920
gtg tcc aat tta gtt acg tat tta tgc gat gaa ttt tgt ctg gat gaa Val Ser Asn Leu Val Thr Tyr Leu Ser Asp Glu Phe Cys Leu Asp Glu 645 650 655	1968
aag cga gaa ttg tcc gag aaa gtc aaa cat gcg aag cga ctc agt gat Lys Arg Glu Leu Ser Glu Lys Val Lys His Ala Lys Arg Leu Ser Asp 660 665 670	2016
gaa cgc aat tta ctc caa gat tca aat ttc aaa gac att aat agg caa Glu Arg Asn Leu Leu Gln Asp Ser Asn Phe Lys Asp Ile Asn Arg Gln 675 680 685	2064
cca gaa cgt ggg tgg ggc gga agt aca ggg att acc atc caa gga ggg Pro Glu Arg Gly Trp Gly Gly Ser Thr Gly Ile Thr Ile Gln Gly Gly 690 695 700	2112
gat gac gta ttt aaa gaa aat tac gtc aca cta tca ggt acc ttt gat Asp Asp Val Phe Lys Glu Asn Tyr Val Thr Leu Ser Gly Thr Phe Asp 705 710 715 720	2160
gag tgc tat cca aca tat ttg tat caa aaa atc gat gaa tca aaa tta Glu Cys Tyr Pro Thr Tyr Leu Tyr Gln Lys Ile Asp Glu Ser Lys Leu 725 730 735	2208
aaa gcc ttt acc cgt tat caa tta aga ggg tat atc gaa gat agt caa Lys Ala Phe Thr Arg Tyr Gln Leu Arg Gly Tyr Ile Glu Asp Ser Gln 740 745 750	2256

## TIC900.ST25.txt

gac tta gaa atc tat tta att cgc tac aat gca aaa cat gaa aca gta Asp Leu Glu Ile Tyr Leu Ile Arg Tyr Asn Ala Lys His Glu Thr Val 755 760 765	2304
aat gtg cca ggt acg ggt tcc tta tgg ccg ctt tca gcc caa agt cca Asn Val Pro Gly Thr Gly Ser Leu Trp Pro Leu Ser Ala Gln Ser Pro 770 775 780	2352
atc gga aag tgt gga gag ccg aat cga tgc gcg cca cac ctt gaa tgg Ile Gly Lys Cys Gly Glu Pro Asn Arg Cys Ala Pro His Leu Glu Trp 785 790 795 800	2400
aat cct gac tta gat tgt tcg tgt agg gat gga gaa aag tgt gcc cat Asn Pro Asp Leu Asp Cys Ser Cys Arg Asp Gly Glu Lys Cys Ala His 805 810 815	2448
cat tcg cat cat ttc tcc tta gac att gat gta gga tgt aca gac tta His Ser His His Phe Ser Leu Asp Ile Asp Val Gly Cys Thr Asp Leu 820 825 830	2496
aat gag gac cta ggt gta tgg gtg atc ttt aag att aag acg caa gat Asn Glu Asp Leu Gly Val Trp Val Ile Phe Lys Ile Lys Thr Gln Asp 835 840 845	2544
ggg cac gca aga cta ggg aat cta gag ttt ctc gaa gag aaa cca tta Gly His Ala Arg Leu Gly Asn Leu Glu Phe Leu Glu Glu Lys Pro Leu 850 855 860	2592
gta gga gaa gcg cta gct cgt gtg aaa aga gcg gag aaa aaa tgg aga Val Gly Glu Ala Leu Ala Arg Val Lys Arg Ala Glu Lys Lys Trp Arg 865 870 875 880	2640
gac aaa cgt gaa aaa ttg gaa tgg gaa aca aat atc gtt tat aaa gag Asp Lys Arg Glu Lys Leu Glu Trp Glu Thr Asn Ile Val Tyr Lys Glu 885 890 895	2688
gca aaa gaa tct gta gat gct tta ttt gta aac tct caa tat gat caa Ala Lys Glu Ser Val Asp Ala Leu Phe Val Asn Ser Gln Tyr Asp Gln 900 905 910	2736
tta caa gcg gat acg aat att gcc atg att cat gcg gca gat aaa cgt Leu Gln Ala Asp Thr Asn Ile Ala Met Ile His Ala Ala Asp Lys Arg 915 920 925	2784
gtt cat agc att cga gaa gct tat ctg cct gag ctg tct gtg att ccg Val His Ser Ile Arg Glu Ala Tyr Leu Pro Glu Leu Ser Val Ile Pro 930 935 940	2832
ggt gtc aat gcg gct att ttt gaa gaa tta gaa ggg cgt att ttc act Gly Val Asn Ala Ala Ile Phe Glu Glu Leu Glu Gly Arg Ile Phe Thr 945 950 955 960	2880
gca ttc tcc cta tat gat gcg aga aat gtc att aaa aat ggt gat ttt Ala Phe Ser Leu Tyr Asp Ala Arg Asn Val Ile Lys Asn Gly Asp Phe 965 970 975	2928
aat aat ggc tta tcc tgc tgg aac gtg aaa ggg cat gta gat gta gaa Asn Asn Gly Leu Ser Cys Trp Asn Val Lys Gly His Val Asp Val Glu 980 985 990	2976
gaa caa aac aac caa cgt tcg gtc ctt gtt gtt ccg gaa tgg gaa gca Glu Gln Asn Asn Gln Arg Ser Val Leu Val Val Pro Glu Trp Glu Ala 995 1000 1005	3024
gaa gtg tca caa gaa gtt cgt gtc tgt ccg ggt cgt ggc tat atc Glu Val Ser Gln Glu Val Arg Val Cys Pro Gly Arg Gly Tyr Ile 1010 1015 1020	3069
ctt cgt gtc aca gcg tac aag gag gga tat gga gaa ggt tgc gta	3114

## TIC900.ST25.txt

```

Leu Arg Val Thr Ala Tyr Lys Glu Gly Tyr Gly Glu Gly Cys Val
1025 1030 1035
acc att cat gag atc gag aac aat aca gac gaa ctg aag ttt agc 3159
Thr Ile His Glu Ile Glu Asn Asn Thr Asp Glu Leu Lys Phe Ser
1040 1045 1050
aac tgc gta gaa gag gaa atc tat cca aat aac acg gta acg tgt 3204
Asn Cys Val Glu Glu Glu Ile Tyr Pro Asn Asn Thr Val Thr Cys
1055 1060 1065
aat gat tat act gta aat caa gaa gaa tac gga ggt gcg tac act 3249
Asn Asp Tyr Thr Val Asn Gln Glu Glu Tyr Gly Ala Tyr Thr
1070 1075 1080
tct cgt aat cga gga tat aac gaa gct cct tcc gta cca gct gat 3294
Ser Arg Asn Arg Gly Tyr Asn Glu Ala Pro Ser Val Pro Ala Asp
1085 1090 1095
tat gcg tca gtc tat gaa gaa aaa tcg tat aca gat gga cga aga 3339
Tyr Ala Ser Val Tyr Glu Glu Lys Ser Tyr Thr Asp Gly Arg Arg
1100 1105 1110
gag aat cct tgt gaa ttt aac aga ggg tat agg gat tac acg cca 3384
Glu Asn Pro Cys Glu Phe Asn Arg Gly Tyr Arg Asp Tyr Thr Pro
1115 1120 1125
cta cca gtt ggt tat gtg aca aaa gaa tta gaa tac ttc cca gaa 3429
Leu Pro Val Gly Tyr Val Thr Lys Glu Leu Glu Tyr Phe Pro Glu
1130 1135 1140
acc gat aag gta tgg att gag att gga gaa acg gaa gga aca ttt 3474
Thr Asp Lys Val Trp Ile Glu Ile Gly Glu Thr Glu Gly Thr Phe
1145 1150 1155
atc gtg gac agc gtg gaa tta ctc ctt atg gag gaa 3510
Ile Val Asp Ser Val Glu Leu Leu Leu Met Glu Glu
1160 1165 1170

```

&lt;210&gt; 26

&lt;211&gt; 1170

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> tic110 CDS consisting of CDS for Domain I of Cry1F linked in frame  
e to CDS for Domain II-III of TIC900 linked in frame to CDS for C  
rylAc protoxin

&lt;400&gt; 26

```

Met Glu Asn Asn Ile Gln Asn Gln Cys Val Pro Tyr Asn Cys Leu Asn
1 5 10 15

```

```

Asn Pro Glu Val Glu Ile Leu Asn Glu Glu Arg Ser Thr Gly Arg Leu
20 25 30

```

```

Pro Leu Asp Ile Ser Leu Ser Leu Thr Arg Phe Leu Leu Ser Glu Phe
35 40 45

```

## TIC900.ST25.txt

Val Pro Gly Val Gly Val Ala Phe Gly Leu Phe Asp Leu Ile Trp Gly  
 50 55 60  
 Phe Ile Thr Pro Ser Asp Trp Ser Leu Phe Leu Leu Gln Ile Glu Gln  
 65 70 75 80  
 Leu Ile Glu Gln Arg Ile Glu Thr Leu Glu Arg Asn Arg Ala Ile Thr  
 85 90 95  
 Thr Leu Arg Gly Leu Ala Asp Ser Tyr Glu Ile Tyr Ile Glu Ala Leu  
 100 105 110  
 Arg Glu Trp Glu Ala Asn Pro Asn Asn Ala Gln Leu Arg Glu Asp Val  
 115 120 125  
 Arg Ile Arg Phe Ala Asn Thr Asp Asp Ala Leu Ile Thr Ala Ile Asn  
 130 135 140  
 Asn Phe Thr Leu Thr Ser Phe Glu Ile Pro Leu Leu Ser Val Tyr Val  
 145 150 155 160  
 Gln Ala Ala Asn Leu His Leu Ser Leu Leu Arg Asp Ala Val Ser Phe  
 165 170 175  
 Gly Gln Gly Trp Gly Leu Asp Ile Ala Thr Val Asn Asn His Tyr Asn  
 180 185 190  
 Arg Leu Ile Asn Leu Ile His Arg Tyr Thr Lys His Cys Leu Asp Thr  
 195 200 205  
 Tyr Asn Gln Gly Leu Glu Asn Leu Arg Gly Thr Asn Thr Arg Gln Trp  
 210 215 220  
 Ala Arg Phe Asn Gln Phe Arg Arg Asp Leu Thr Leu Thr Val Leu Asp  
 225 230 235 240  
 Ile Val Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr  
 245 250 255  
 Thr Val Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn  
 260 265 270  
 Phe Asn Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp  
 275 280 285  
 Met Glu Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg  
 290 295 300  
 Met Leu Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr  
 305 310 315 320

## TIC900.ST25.txt

Trp Gly Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile  
325 330 335

Arg Ser Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp  
340 345 350

Phe Tyr Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu  
355 360 365

Arg Pro Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser  
370 375 380

Leu Glu Gly Val Glu Phe His Thr Ser Thr Gly Ser Phe Met Tyr Arg  
385 390 395 400

Glu Arg Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Pro  
405 410 415

Val Gly Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr  
420 425 430

Phe Val Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe  
435 440 445

Ser Trp Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn  
450 455 460

Ile Ile Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly  
465 470 475 480

Thr Thr Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg  
485 490 495

Arg Thr Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala  
500 505 510

Pro Leu Ser Glu Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr  
515 520 525

Asp Leu Gln Phe Val Thr Ser Ile Asn Gly Ala Thr Ile Asn Ile Gly  
530 535 540

Asn Phe Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser Glu Gly  
545 550 555 560

Tyr Arg Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn Ala Gln  
565 570 575

Ser Ile Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val  
580 585 590

Tyr Val Asp Lys Ile Glu Phe Ile Pro Val Glu Leu Glu Ala Glu Tyr

TIC900.ST25.txt  
605

595

600

Asn Leu Glu Arg Ala Gln Lys Ala Val Asn Ala Leu Phe Thr Ser Thr  
610 615 620

Asn Gln Leu Gly Leu Lys Thr Asn Val Thr Asp Tyr His Ile Asp Gln  
625 630 635 640

Val Ser Asn Leu Val Thr Tyr Leu Ser Asp Glu Phe Cys Leu Asp Glu  
645 650 655

Lys Arg Glu Leu Ser Glu Lys Val Lys His Ala Lys Arg Leu Ser Asp  
660 665 670

Glu Arg Asn Leu Leu Gln Asp Ser Asn Phe Lys Asp Ile Asn Arg Gln  
675 680 685

Pro Glu Arg Gly Trp Gly Gly Ser Thr Gly Ile Thr Ile Gln Gly Gly  
690 695 700

Asp Asp Val Phe Lys Glu Asn Tyr Val Thr Leu Ser Gly Thr Phe Asp  
705 710 715 720

Glu Cys Tyr Pro Thr Tyr Leu Tyr Gln Lys Ile Asp Glu Ser Lys Leu  
725 730 735

Lys Ala Phe Thr Arg Tyr Gln Leu Arg Gly Tyr Ile Glu Asp Ser Gln  
740 745 750

Asp Leu Glu Ile Tyr Leu Ile Arg Tyr Asn Ala Lys His Glu Thr Val  
755 760 765

Asn Val Pro Gly Thr Gly Ser Leu Trp Pro Leu Ser Ala Gln Ser Pro  
770 775 780

Ile Gly Lys Cys Gly Glu Pro Asn Arg Cys Ala Pro His Leu Glu Trp  
785 790 795 800

Asn Pro Asp Leu Asp Cys Ser Cys Arg Asp Gly Glu Lys Cys Ala His  
805 810 815

His Ser His His Phe Ser Leu Asp Ile Asp Val Gly Cys Thr Asp Leu  
820 825 830

Asn Glu Asp Leu Gly Val Trp Val Ile Phe Lys Ile Lys Thr Gln Asp  
835 840 845

Gly His Ala Arg Leu Gly Asn Leu Glu Phe Leu Glu Glu Lys Pro Leu  
850 855 860

Val Gly Glu Ala Leu Ala Arg Val Lys Arg Ala Glu Lys Lys Trp Arg  
865 870 875 880

## TIC900.ST25.txt

Asp Lys Arg Glu Lys Leu Glu Trp Glu Thr Asn Ile Val Tyr Lys Glu  
                   885                                  890                  895

Ala Lys Glu Ser Val Asp Ala Leu Phe Val Asn Ser Gln Tyr Asp Gln  
                   900                                  905                  910

Leu Gln Ala Asp Thr Asn Ile Ala Met Ile His Ala Ala Asp Lys Arg  
                   915                                  920                  925

Val His Ser Ile Arg Glu Ala Tyr Leu Pro Glu Leu Ser Val Ile Pro  
                   930                                  935                  940

Gly Val Asn Ala Ala Ile Phe Glu Glu Leu Glu Gly Arg Ile Phe Thr  
                   945                                  950                  955                  960

Ala Phe Ser Leu Tyr Asp Ala Arg Asn Val Ile Lys Asn Gly Asp Phe  
                   965                                  970                  975

Asn Asn Gly Leu Ser Cys Trp Asn Val Lys Gly His Val Asp Val Glu  
                   980                                  985                  990

Glu Gln Asn Asn Gln Arg Ser Val Leu Val Val Pro Glu Trp Glu Ala  
                   995                                  1000                  1005

Glu Val Ser Gln Glu Val Arg Val Cys Pro Gly Arg Gly Tyr Ile  
                   1010                                  1015                  1020

Leu Arg Val Thr Ala Tyr Lys Glu Gly Tyr Gly Glu Gly Cys Val  
                   1025                                  1030                  1035

Thr Ile His Glu Ile Glu Asn Asn Thr Asp Glu Leu Lys Phe Ser  
                   1040                                  1045                  1050

Asn Cys Val Glu Glu Glu Ile Tyr Pro Asn Asn Thr Val Thr Cys  
                   1055                                  1060                  1065

Asn Asp Tyr Thr Val Asn Gln Glu Glu Tyr Gly Gly Ala Tyr Thr  
                   1070                                  1075                  1080

Ser Arg Asn Arg Gly Tyr Asn Glu Ala Pro Ser Val Pro Ala Asp  
                   1085                                  1090                  1095

Tyr Ala Ser Val Tyr Glu Glu Lys Ser Tyr Thr Asp Gly Arg Arg  
                   1100                                  1105                  1110

Glu Asn Pro Cys Glu Phe Asn Arg Gly Tyr Arg Asp Tyr Thr Pro  
                   1115                                  1120                  1125

Leu Pro Val Gly Tyr Val Thr Lys Glu Leu Glu Tyr Phe Pro Glu  
                   1130                                  1135                  1140

## TIC900.ST25.txt

Thr Asp Lys Val Trp Ile Glu Ile Gly Glu Thr Glu Gly Thr Phe  
1145 1150 1155

Ile Val Asp Ser Val Glu Leu Leu Leu Met Glu Glu  
1160 1165 1170

<210> 27

<211> 3516

<212> DNA

<213> Artificial Sequence

<220>

<223> TIC111 CDS consisting of CDS for CryIAC domain I linked in frame to CDS for TIC900 domain II-III linked in frame to CDS for CryIAC protoxin domain

<220>

<221> CDS

<222> (1)..(3516)

<223> TIC111 comprising CryIAC domain I nt 1-705 (amino acid 1-235); TI C900 domain II-III nt 706-1815 (amino acid 236-605); nt 1816-1821 linker; CryIAC protoxin domain nt 1822-3516 (amino acid 608-1172 )

<400> 27

atg gat aac aat ccg aac atc aat gaa tgc att cct tat aat tgt tta 48  
Met Asp Asn Asn Pro Asn Ile Asn Glu Cys Ile Pro Tyr Asn Cys Leu  
1 5 10 15

agt aac cct gaa gta gaa gta tta ggt gga gaa aga ata gaa act ggt 96  
Ser Asn Pro Glu Val Glu Val Leu Gly Gly Glu Arg Ile Glu Thr Gly  
20 25 30

tac acc cca atc gat att tcc ttg tgc cta acg caa ttt ctt ttg agt 144  
Tyr Thr Pro Ile Asp Ile Ser Leu Ser Leu Thr Gln Phe Leu Leu Ser  
35 40 45

gaa ttt gtt ccc ggt gct gga ttt gtg tta gga cta gtt gat ata ata 192  
Glu Phe Val Pro Gly Ala Gly Phe Val Leu Gly Leu Val Asp Ile Ile  
50 55 60

tgg gga att ttt ggt ccc tct caa tgg gac gca ttt ctt gta caa att 240  
Trp Gly Ile Phe Gly Pro Ser Gln Trp Asp Ala Phe Leu Val Gln Ile  
65 70 75 80

gaa cag tta att aac caa aga ata gaa gaa ttc gct agg aac caa gcc 288  
Glu Gln Leu Ile Asn Gln Arg Ile Glu Glu Phe Ala Arg Asn Gln Ala  
85 90 95

att tct aga tta gaa gga cta agc aat ctt tat caa att tac gcg gaa 336  
Ile Ser Arg Leu Glu Gly Leu Ser Asn Leu Tyr Gln Ile Tyr Ala Glu  
100 105 110

tct ttt aga gag tgg gaa gca gat cct act aat cca gca tta aga gaa 384  
Ser Phe Arg Glu Trp Glu Ala Asp Pro Thr Asn Pro Ala Leu Arg Glu

TIC900.ST25.txt

115	120	125	
gag atg cgt att caa ttc aat gac atg aac agt gcc ctt aca acc gct			432
Glu Met Arg Ile Gln Phe Asn Asp Met Asn Ser Ala Leu Thr Thr Ala			
130	135	140	
att cct ctt ttt gca gtt caa aat tat caa gtt cct ctt tta tca gta			480
Ile Pro Leu Phe Ala Val Gln Asn Tyr Gln Val Pro Leu Leu Ser Val			
145	150	155	160
tat gtt caa gct gca aat tta cat tta tca gtt ttg aga gat gtt tca			528
Tyr Val Gln Ala Ala Asn Leu His Leu Ser Val Leu Arg Asp Val Ser			
	165	170	175
gtg ttt gga caa agg tgg gga ttt gat gcc gcg act atc aat agt cgt			576
Val Phe Gly Gln Arg Trp Gly Phe Asp Ala Ala Thr Ile Asn Ser Arg			
	180	185	190
tat aat gat tta act agg ctt att ggc aac tat aca gat cat gct gta			624
Tyr Asn Asp Leu Thr Arg Leu Ile Gly Asn Tyr Thr Asp His Ala Val			
	195	200	205
cgc tgg tac aat acg gga tta gag cgt gta tgg gga ccg gat tct aga			672
Arg Trp Tyr Asn Thr Gly Leu Glu Arg Val Trp Gly Pro Asp Ser Arg			
	210	215	220
gat tgg ata aga tat aat caa ttt aga aga gat cta acg ctt act gtt			720
Asp Trp Ile Arg Tyr Asn Gln Phe Arg Arg Asp Leu Thr Leu Thr Val			
225	230	235	240
tta gat atc gtt gct tta ttc ccg cac tat gat gta caa act tat cca			768
Leu Asp Ile Val Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro			
	245	250	255
ata aca acc gtt gct cag tta aca agg gaa gtt tat acg gat cct tta			816
Ile Thr Thr Val Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu			
	260	265	270
ctt aat ttt aat cct aaa tta cat tct gtg tct caa tta cct agt ttt			864
Leu Asn Phe Asn Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe			
	275	280	285
agt gac atg gaa aat gca aca att aga act cca cat ctg atg gaa ttt			912
Ser Asp Met Glu Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe			
	290	295	300
tta aga atg cta aca att tat aca gat tgg tat agt gtg gga aga aac			960
Leu Arg Met Leu Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn			
305	310	315	320
tat tat tgg gga gga cat cgc gtg acg tct tac cat gta gga gga gag			1008
Tyr Tyr Trp Gly Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu			
	325	330	335
aat ata aga tca cct cta tat ggt aga gag gca aat caa gag gtt cct			1056
Asn Ile Arg Ser Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro			
	340	345	350
aga gat ttt tat ttt tat gga ccc gtt ttt aag acg tta tca aag ccg			1104
Arg Asp Phe Tyr Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro			
	355	360	365
act cta aga cca tta cag cag cct gca cca gct cct cct ttt aat tta			1152
Thr Leu Arg Pro Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu			
	370	375	380
cgt agc tta gag gga gta gaa ttc cac act tct aca ggt agt ttt atg			1200
Arg Ser Leu Glu Gly Val Glu Phe His Thr Ser Thr Gly Ser Phe Met			
385	390	395	400

## TIC900.ST25.txt

tat cgt gaa aga gga tcg gta gat tct ttt aat gag tta ccg cct ttt Tyr Arg Glu Arg Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe 405 410 415	1248
aat cca gtt ggg tta cct cat aag gta tac agt cac cgt tta tgt cat Asn Pro Val Gly Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His 420 425 430	1296
gca acg ttt gtt cgt aaa tct ggg acc cct tat tta aca aca ggt gcc Ala Thr Phe Val Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala 435 440 445	1344
atc ttt tct tgg aca cat cgt agt gct gaa gaa acc aat aca att gaa Ile Phe Ser Trp Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu 450 455 460	1392
tca aat att att acg caa atc ccg tta gta aaa gca tat caa att gga Ser Asn Ile Ile Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly 465 470 475 480	1440
tca ggc act act gta agg aaa gga cca gga ttc aca gga ggg gat ata Ser Gly Thr Thr Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile 485 490 495	1488
ctt cga aga aca ggt cct gga aca ttt gga gat atg aga ata aat att Leu Arg Arg Thr Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile 500 505 510	1536
aat gca cca tta tct gaa aga tat cgt gta agg att cgt tat gct tct Asn Ala Pro Leu Ser Glu Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser 515 520 525	1584
acg aca gat tta caa ttt gtc acg agt att aat ggg gcc acc att aat Thr Thr Asp Leu Gln Phe Val Thr Ser Ile Asn Gly Ala Thr Ile Asn 530 535 540	1632
att ggt aac ttc cca aaa act att aat aat cta aat act tta ggt tct Ile Gly Asn Phe Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser 545 550 555 560	1680
gag ggc tat aga aca gta tcg ttt agt act cca ttt agt ttc tca aat Glu Gly Tyr Arg Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn 565 570 575	1728
gca caa agc ata ttt aga tta ggt ata caa gca ttt tct gga gtt caa Ala Gln Ser Ile Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln 580 585 590	1776
gaa gtt tat gtg gat aaa att gaa ttt att cct gtt gaa ctc gag gct Glu Val Tyr Val Asp Lys Ile Glu Phe Ile Pro Val Glu Leu Glu Ala 595 600 605	1824
gaa tat aat ctg gaa aga gcg cag aag gcg gtg aat gcg ctg ttt acg Glu Tyr Asn Leu Glu Arg Ala Gln Lys Ala Val Asn Ala Leu Phe Thr 610 615 620	1872
tct aca aac caa cta ggg cta aaa aca aat gta acg gat tat cat att Ser Thr Asn Gln Leu Gly Leu Lys Thr Asn Val Thr Asp Tyr His Ile 625 630 635 640	1920
gat caa gtg tcc aat tta gtt acg tat tta tcg gat gaa ttt tgt ctg Asp Gln Val Ser Asn Leu Val Thr Tyr Leu Ser Asp Glu Phe Cys Leu 645 650 655	1968
gat gaa aag cga gaa ttg tcc gag aaa gtc aaa cat gcg aag cga ctc Asp Glu Lys Arg Glu Leu Ser Glu Lys Val Lys His Ala Lys Arg Leu 660 665 670	2016

TIC900.ST25.txt

agt gat gaa cgc aat tta ctc caa gat tca aat ttc aaa gac att aat Ser Asp Glu Arg Asn Leu Leu Gln Asp Ser Asn Phe Lys Asp Ile Asn 675 680 685	2064
agg caa cca gaa cgt ggg tgg ggc gga agt aca ggg att acc atc caa Arg Gln Pro Glu Arg Gly Trp Gly Gly Ser Thr Gly Ile Thr Ile Gln 690 695 700	2112
gga ggg gat gac gta ttt aaa gaa aat tac gtc aca cta tca ggt acc Gly Gly Asp Asp Val Phe Lys Glu Asn Tyr Val Thr Leu Ser Gly Thr 705 710 715 720	2160
ttt gat gag tgc tat cca aca tat ttg tat caa aaa atc gat gaa tca Phe Asp Glu Cys Tyr Pro Thr Tyr Leu Tyr Gln Lys Ile Asp Glu Ser 725 730 735	2208
aaa tta aaa gcc ttt acc cgt tat caa tta aga ggg tat atc gaa gat Lys Leu Lys Ala Phe Thr Arg Tyr Gln Leu Arg Gly Tyr Ile Glu Asp 740 745 750	2256
agt caa gac tta gaa atc tat tta att cgc tac aat gca aaa cat gaa Ser Gln Asp Leu Glu Ile Tyr Leu Ile Arg Tyr Asn Ala Lys His Glu 755 760 765	2304
aca gta aat gtg cca ggt acg ggt tcc tta tgg ccg ctt tca gcc caa Thr Val Asn Val Pro Gly Thr Gly Ser Leu Trp Pro Leu Ser Ala Gln 770 775 780	2352
agt cca atc gga aag tgt gga gag ccg aat cga tgc gcg cca cac ctt Ser Pro Ile Gly Lys Cys Gly Glu Pro Asn Arg Cys Ala Pro His Leu 785 790 795 800	2400
gaa tgg aat cct gac tta gat tgt tcg tgt agg gat gga gaa aag tgt Glu Trp Asn Pro Asp Leu Asp Cys Ser Cys Arg Asp Gly Glu Lys Cys 805 810 815	2448
gcc cat cat tcg cat cat ttc tcc tta gac att gat gta gga tgt aca Ala His His Ser His His Phe Ser Leu Asp Ile Asp Val Gly Cys Thr 820 825 830	2496
gac tta aat gag gac cta ggt gta tgg gtg atc ttt aag att aag acg Asp Leu Asn Glu Asp Leu Gly Val Trp Val Ile Phe Lys Ile Lys Thr 835 840 845	2544
caa gat ggg cac gca aga cta ggg aat cta gag ttt ctc gaa gag aaa Gln Asp Gly His Ala Arg Leu Gly Asn Leu Glu Phe Leu Glu Glu Lys 850 855 860	2592
cca tta gta gga gaa gcg cta gct cgt gtg aaa aga gcg gag aaa aaa Pro Leu Val Gly Glu Ala Leu Ala Arg Val Lys Arg Ala Glu Lys Lys 865 870 875 880	2640
tgg aga gac aaa cgt gaa aaa ttg gaa tgg gaa aca aat atc gtt tat Trp Arg Asp Lys Arg Glu Lys Leu Glu Trp Glu Thr Asn Ile Val Tyr 885 890 895	2688
aaa gag gca aaa gaa tct gta gat gct tta ttt gta aac tct caa tat Lys Glu Ala Lys Glu Ser Val Asp Ala Leu Phe Val Asn Ser Gln Tyr 900 905 910	2736
gat caa tta caa gcg gat acg aat att gcc atg att cat gcg gca gat Asp Gln Leu Gln Ala Asp Thr Asn Ile Ala Met Ile His Ala Ala Asp 915 920 925	2784
aaa cgt gtt cat agc att cga gaa gct tat ctg cct gag ctg tct gtg Lys Arg Val His Ser Ile Arg Glu Ala Tyr Leu Pro Glu Leu Ser Val 930 935 940	2832
att ccg ggt gtc aat gcg gct att ttt gaa gaa tta gaa ggg cgt att	2880



## TIC900.ST25.txt

&lt;220&gt;

<223> TIC111 CDS consisting of CDS for CryIAC domain I linked in frame to CDS for TIC900 domain II-III linked in frame to CDS for CryIAC protoxin domain

&lt;400&gt; 28

Met Asp Asn Asn Pro Asn Ile Asn Glu Cys Ile Pro Tyr Asn Cys Leu  
1 5 10 15

Ser Asn Pro Glu Val Glu Val Leu Gly Gly Glu Arg Ile Glu Thr Gly  
20 25 30

Tyr Thr Pro Ile Asp Ile Ser Leu Ser Leu Thr Gln Phe Leu Leu Ser  
35 40 45

Glu Phe Val Pro Gly Ala Gly Phe Val Leu Gly Leu Val Asp Ile Ile  
50 55 60

Trp Gly Ile Phe Gly Pro Ser Gln Trp Asp Ala Phe Leu Val Gln Ile  
65 70 75 80

Glu Gln Leu Ile Asn Gln Arg Ile Glu Glu Phe Ala Arg Asn Gln Ala  
85 90 95

Ile Ser Arg Leu Glu Gly Leu Ser Asn Leu Tyr Gln Ile Tyr Ala Glu  
100 105 110

Ser Phe Arg Glu Trp Glu Ala Asp Pro Thr Asn Pro Ala Leu Arg Glu  
115 120 125

Glu Met Arg Ile Gln Phe Asn Asp Met Asn Ser Ala Leu Thr Thr Ala  
130 135 140

Ile Pro Leu Phe Ala Val Gln Asn Tyr Gln Val Pro Leu Leu Ser Val  
145 150 155 160

Tyr Val Gln Ala Ala Asn Leu His Leu Ser Val Leu Arg Asp Val Ser  
165 170 175

Val Phe Gly Gln Arg Trp Gly Phe Asp Ala Ala Thr Ile Asn Ser Arg  
180 185 190

Tyr Asn Asp Leu Thr Arg Leu Ile Gly Asn Tyr Thr Asp His Ala Val  
195 200 205

Arg Trp Tyr Asn Thr Gly Leu Glu Arg Val Trp Gly Pro Asp Ser Arg  
210 215 220

Asp Trp Ile Arg Tyr Asn Gln Phe Arg Arg Asp Leu Thr Leu Thr Val  
225 230 235 240

## TIC900.ST25.txt

Leu Asp Ile Val Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro  
245 250 255

Ile Thr Thr Val Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu  
260 265 270

Leu Asn Phe Asn Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe  
275 280 285

Ser Asp Met Glu Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe  
290 295 300

Leu Arg Met Leu Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn  
305 310 315 320

Tyr Tyr Trp Gly Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu  
325 330 335

Asn Ile Arg Ser Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro  
340 345 350

Arg Asp Phe Tyr Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro  
355 360 365

Thr Leu Arg Pro Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu  
370 375 380

Arg Ser Leu Glu Gly Val Glu Phe His Thr Ser Thr Gly Ser Phe Met  
385 390 395 400

Tyr Arg Glu Arg Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe  
405 410 415

Asn Pro Val Gly Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His  
420 425 430

Ala Thr Phe Val Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala  
435 440 445

Ile Phe Ser Trp Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu  
450 455 460

Ser Asn Ile Ile Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly  
465 470 475 480

Ser Gly Thr Thr Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile  
485 490 495

Leu Arg Arg Thr Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile  
500 505 510

Asn Ala Pro Leu Ser Glu Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser

TIC900.ST25.txt  
525

515                      520  
 Thr Thr Asp Leu Gln Phe Val Thr Ser Ile Asn Gly Ala Thr Ile Asn  
     530                      535                      540  
 Ile Gly Asn Phe Pro Lys Thr Ile Asn Asn Leu Asn Thr Leu Gly Ser  
     545                      550                      555                      560  
 Glu Gly Tyr Arg Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asn  
                                  565                      570                      575  
 Ala Gln Ser Ile Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln  
                                  580                      585                      590  
 Glu Val Tyr Val Asp Lys Ile Glu Phe Ile Pro Val Glu Leu Glu Ala  
                                  595                      600                      605  
 Glu Tyr Asn Leu Glu Arg Ala Gln Lys Ala Val Asn Ala Leu Phe Thr  
     610                      615                      620  
 Ser Thr Asn Gln Leu Gly Leu Lys Thr Asn Val Thr Asp Tyr His Ile  
     625                      630                      635                      640  
 Asp Gln Val Ser Asn Leu Val Thr Tyr Leu Ser Asp Glu Phe Cys Leu  
                                  645                      650                      655  
 Asp Glu Lys Arg Glu Leu Ser Glu Lys Val Lys His Ala Lys Arg Leu  
                                  660                      665                      670  
 Ser Asp Glu Arg Asn Leu Leu Gln Asp Ser Asn Phe Lys Asp Ile Asn  
     675                      680                      685  
 Arg Gln Pro Glu Arg Gly Trp Gly Gly Ser Thr Gly Ile Thr Ile Gln  
     690                      695                      700  
 Gly Gly Asp Asp Val Phe Lys Glu Asn Tyr Val Thr Leu Ser Gly Thr  
     705                      710                      715                      720  
 Phe Asp Glu Cys Tyr Pro Thr Tyr Leu Tyr Gln Lys Ile Asp Glu Ser  
                                  725                      730                      735  
 Lys Leu Lys Ala Phe Thr Arg Tyr Gln Leu Arg Gly Tyr Ile Glu Asp  
                                  740                      745                      750  
 Ser Gln Asp Leu Glu Ile Tyr Leu Ile Arg Tyr Asn Ala Lys His Glu  
                                  755                      760                      765  
 Thr Val Asn Val Pro Gly Thr Gly Ser Leu Trp Pro Leu Ser Ala Gln  
     770                      775                      780  
 Ser Pro Ile Gly Lys Cys Gly Glu Pro Asn Arg Cys Ala Pro His Leu  
     785                      790                      795                      800

## TIC900.ST25.txt

Glu Trp Asn Pro Asp Leu Asp Cys Ser Cys Arg Asp Gly Glu Lys Cys  
 805 810 815  
 Ala His His Ser His His Phe Ser Leu Asp Ile Asp Val Gly Cys Thr  
 820 825 830  
 Asp Leu Asn Glu Asp Leu Gly Val Trp Val Ile Phe Lys Ile Lys Thr  
 835 840 845  
 Gln Asp Gly His Ala Arg Leu Gly Asn Leu Glu Phe Leu Glu Glu Lys  
 850 855 860  
 Pro Leu Val Gly Glu Ala Leu Ala Arg Val Lys Arg Ala Glu Lys Lys  
 865 870 875 880  
 Trp Arg Asp Lys Arg Glu Lys Leu Glu Trp Glu Thr Asn Ile Val Tyr  
 885 890 895  
 Lys Glu Ala Lys Glu Ser Val Asp Ala Leu Phe Val Asn Ser Gln Tyr  
 900 905 910  
 Asp Gln Leu Gln Ala Asp Thr Asn Ile Ala Met Ile His Ala Ala Asp  
 915 920 925  
 Lys Arg Val His Ser Ile Arg Glu Ala Tyr Leu Pro Glu Leu Ser Val  
 930 935 940  
 Ile Pro Gly Val Asn Ala Ala Ile Phe Glu Glu Leu Glu Gly Arg Ile  
 945 950 955 960  
 Phe Thr Ala Phe Ser Leu Tyr Asp Ala Arg Asn Val Ile Lys Asn Gly  
 965 970 975  
 Asp Phe Asn Asn Gly Leu Ser Cys Trp Asn Val Lys Gly His Val Asp  
 980 985 990  
 Val Glu Glu Gln Asn Asn Gln Arg Ser Val Leu Val Val Pro Glu Trp  
 995 1000 1005  
 Glu Ala Glu Val Ser Gln Glu Val Arg Val Cys Pro Gly Arg Gly  
 1010 1015 1020  
 Tyr Ile Leu Arg Val Thr Ala Tyr Lys Glu Gly Tyr Gly Glu Gly  
 1025 1030 1035  
 Cys Val Thr Ile His Glu Ile Glu Asn Asn Thr Asp Glu Leu Lys  
 1040 1045 1050  
 Phe Ser Asn Cys Val Glu Glu Glu Ile Tyr Pro Asn Asn Thr Val  
 1055 1060 1065

## TIC900.ST25.txt

Thr Cys Asn Asp Tyr Thr Val Asn Gln Glu Glu Tyr Gly Gly Ala  
1070 1075 1080

Tyr Thr Ser Arg Asn Arg Gly Tyr Asn Glu Ala Pro Ser Val Pro  
1085 1090 1095

Ala Asp Tyr Ala Ser Val Tyr Glu Glu Lys Ser Tyr Thr Asp Gly  
1100 1105 1110

Arg Arg Glu Asn Pro Cys Glu Phe Asn Arg Gly Tyr Arg Asp Tyr  
1115 1120 1125

Thr Pro Leu Pro Val Gly Tyr Val Thr Lys Glu Leu Glu Tyr Phe  
1130 1135 1140

Pro Glu Thr Asp Lys Val Trp Ile Glu Ile Gly Glu Thr Glu Gly  
1145 1150 1155

Thr Phe Ile Val Asp Ser Val Glu Leu Leu Leu Met Glu Glu  
1160 1165 1170

<210> 29

<211> 7585

<212> DNA

<213> Bacillus thuringiensis

<220>

<221> CDS

<222> (415)..(2238)

<223> TIC434 CDS

<400> 29

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ctcgtgtatg agagcttgtc ctgaatcgaa agccgcccta gagctactaa catctagggt      180
cgaggatcag gctgctcagc ctgcgagtag ggagtccgcg acgttcactg agaaacactc      240
taagttatgt ggtaagtcca caggaggaat aagaattgtc ccaaattgat ctaacatcat      300
tatctagaaa tatcttgaga cgtccaagta ttttatttat tacaggactc ttattaaaga      360
aaaaatctaa gtctgaaata ggacttaaata attaatatatc gaggaggaag aggt atg      417
                                     Met
                                     1

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aat tca aag gaa cat gat tat cta aaa gtt tgt aat gat tta agt gac      465
Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser Asp
      5              10              15

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## TIC900.ST25.txt

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ggt atg tct att gta tct gag ctc ctt ggt atg att cca ggt gga aaa Gly Met Ser Ile Val Ser Glu Leu Leu Gly Met Ile Pro Gly Gly Lys 35 40 45	561
gcc ttg caa ttt gtg ttt gat caa ttg tgg tct cgt ttg ggt gat tct Ala Leu Gln Phe Val Phe Asp Gln Leu Trp Ser Arg Leu Gly Asp Ser 50 55 60 65	609
gga tgg agt gcg ttc atg gaa cat gtg gag gaa tta att gat act aaa Gly Trp Ser Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr Lys 70 75 80	657
ata gaa ggg tat gca aaa aat aaa gcc tta tct gaa tta gca ggt ata Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly Ile 85 90 95	705
caa aga aac ctt gaa aca tat ata caa tta cgt aat gaa tgg gaa aat Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu Asn 100 105 110	753
gat atc gaa aac tca aag gct caa gtt aag gta gct aat tac tat gaa Asp Ile Glu Asn Ser Lys Ala Gln Val Lys Val Ala Asn Tyr Tyr Glu 115 120 125	801
agt ctt gag cag gcg gtt gaa agg agt atg cct caa ttt gca gtg ggg Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val Gly 130 135 140 145	849
aat ttt gaa gta cca ctt tta act gtt tat gtg caa gct gct aat ctt Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn Leu 150 155 160	897
cat ata tta tta tta aga gat gtt cta att tat gga aag cgt tgg gga His Ile Leu Leu Leu Arg Asp Val Leu Ile Tyr Gly Lys Arg Trp Gly 165 170 175	945
tgg tcg gag cag aaa att aaa att tat tat gat aga cag att aag tat Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Arg Gln Ile Lys Tyr 180 185 190	993
acc cat gaa tac aca aat cat tgt gta aat tgg tat aat aaa gga ctt Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly Leu 195 200 205	1041
gag aga tta aaa aat aaa ggt tct tct tat caa gat tgg tac aat tat Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn Tyr 210 215 220 225	1089
aat cgt ttc cgt aga gaa atg act ctt act gtt tta gat atc gtt gct Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val Ala 230 235 240	1137
tta ttc ccg cac tat gat gta caa act tat cca ata aca acc gtt gct Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val Ala 245 250 255	1185
cag cta aca agg gaa gtt tat acg gat cct tta ctt aat ttt aat cct Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn Pro 260 265 270	1233
aaa tta cat tct gtg tct caa tta cct agt ttt agt gac atg gaa aat Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu Asn 275 280 285	1281

TIC900.ST25.txt

gca aca att aga acc cca cat cta atg gaa ttt tta aga atg cta aca	1329
Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu Thr	
290 295 300 305	
att tat aca gat tgg tat agt gtg gga aga aac tat tat tgg gga gga	1377
Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly Gly	
310 315 320	
cat cgc gtg acg tct tac cat gta gga gga gag aat ata aga tca cct	1425
His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser Pro	
325 330 335	
cta tat ggt aga gag gca aat caa gag gtt cct aga gat ttt tat ttt	1473
Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr Phe	
340 345 350	
tat gga ccc gtt ttt aag acg tta tca aag ccg act cta aga cca tta	1521
Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro Leu	
355 360 365	
cag cag cct gca cca gct cct ccc ttt aat tta cgt agc tta gag gga	1569
Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu Gly	
370 375 380 385	
gta gaa ttc cac act cct aca ggt agt ttt ttg tat cgt gaa aga gga	1617
Val Glu Phe His Thr Pro Thr Gly Ser Phe Leu Tyr Arg Glu Arg Gly	
390 395 400	
tcg gta gat tct ttt aat gag tta ccg cct ttt aat cta gtt ggg tta	1665
Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Leu Val Gly Leu	
405 410 415	
cct cat aag gta tac agt cac cgt tta tgt cat gca acg ttt gtt cgt	1713
Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val Arg	
420 425 430	
aaa tct ggg acc cct tat tta aca aca ggt gcc atc ttt tct tgg aca	1761
Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp Thr	
435 440 445	
cat cgt agt gct gaa gaa acc aat aca att gaa tca aat atc att acg	1809
His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile Thr	
450 455 460 465	
caa atc ccg tta gta aaa gca tat caa att gga tcg ggc act act gta	1857
Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr Val	
470 475 480	
agg aaa gga cca gga ttc aca gga ggg gat ata ctt cga aga aca ggt	1905
Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr Gly	
485 490 495	
cct gga aca ttt gga gat atg aga ata aat att aat gca cca tta tct	1953
Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu Ser	
500 505 510	
caa aga tat cgt gta agg att cgt tat gct tct acg aca gat tta caa	2001
Gln Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu Gln	
515 520 525	
ttt ttc acg agc att aat gga acc act att aat atc ggc aat ttc ccc	2049
Phe Phe Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe Pro	
530 535 540 545	
aaa act att aat aat gtg aat cct tta agt tct gag agc tat aga aca	2097
Lys Thr Ile Asn Asn Val Asn Pro Leu Ser Ser Glu Ser Tyr Arg Thr	
550 555 560	
gta tct ttt agt acg cca ttt agt ttt tca gat gca caa agt ata ttt	2145

aga tta ggt ata caa gct ttt tct gga gtt caa gaa gtt tat gtg gat	2193
Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val Asp	
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Lys Ile Glu Phe Ile Pro Phe Glu Val Gly Phe Asn Asn Thr Ile	
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gatggtcgaa ggtagtacga atgatatagg tgaggaaaagt aatagtaagg atacgggtac	3678
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acgtgatggg tggctgaacc taggtaactc atgggtgaaa tatgatcctt cttatatctt	3858
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TIC900.ST25.txt

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gagaatacta tgattaattt acttataaat acagatcttt ctaaaaagct gttaagttaa	5838
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## TIC900.ST25.txt

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aggtggt 7585

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&lt;210&gt; 30

&lt;211&gt; 608

&lt;212&gt; PRT

<213> *Bacillus thuringiensis*

&lt;400&gt; 30

Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser  
 1 5 10 15

## TIC900.ST25.txt

Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu  
 20 25 30  
 Ile Gly Met Ser Ile Val Ser Glu Leu Leu Gly Met Ile Pro Gly Gly  
 35 40 45  
 Lys Ala Leu Gln Phe Val Phe Asp Gln Leu Trp Ser Arg Leu Gly Asp  
 50 55 60  
 Ser Gly Trp Ser Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr  
 65 70 75 80  
 Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly  
 85 90 95  
 Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu  
 100 105 110  
 Asn Asp Ile Glu Asn Ser Lys Ala Gln Val Lys Val Ala Asn Tyr Tyr  
 115 120 125  
 Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val  
 130 135 140  
 Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn  
 145 150 155 160  
 Leu His Ile Leu Leu Leu Arg Asp Val Leu Ile Tyr Gly Lys Arg Trp  
 165 170 175  
 Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Arg Gln Ile Lys  
 180 185 190  
 Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly  
 195 200 205  
 Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn  
 210 215 220  
 Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val  
 225 230 235 240  
 Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val  
 245 250 255  
 Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn  
 260 265 270  
 Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu  
 275 280 285

## TIC900.ST25.txt

Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu  
 290 295 300

Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly  
 305 310 315 320

Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser  
 325 330 335

Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr  
 340 345 350

Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro  
 355 360 365

Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu  
 370 375 380

Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Leu Tyr Arg Glu Arg  
 385 390 395 400

Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Leu Val Gly  
 405 410 415

Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val  
 420 425 430

Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp  
 435 440 445

Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile  
 450 455 460

Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr  
 465 470 475 480

Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr  
 485 490 495

Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu  
 500 505 510

Ser Gln Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu  
 515 520 525

Gln Phe Phe Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe  
 530 535 540

Pro Lys Thr Ile Asn Asn Val Asn Pro Leu Ser Ser Glu Ser Tyr Arg  
 545 550 555 560

Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asp Ala Gln Ser Ile

TIC900.ST25.txt

565

570

575

Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val  
 580 585 590

Asp Lys Ile Glu Phe Ile Pro Phe Glu Val Gly Phe Asn Asn Thr Ile  
 595 600 605

&lt;210&gt; 31

&lt;211&gt; 3525

&lt;212&gt; DNA

&lt;213&gt; Artificial

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(3525)

<223> TIC435 CDS; 1-1825 corresponds to TIC434 CDS; 1826-3525 correspon  
 ds to Cryl protoxin

&lt;400&gt; 31

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 Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser  
 1 5 10 15

gac gcc aat att aat atg gag cgg ttt gat aag aat gat gca ctg gaa 96  
 Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu  
 20 25 30

att ggt atg tct att gta tct gag ctc ctt ggt atg att cca ggt gga 144  
 Ile Gly Met Ser Ile Val Ser Glu Leu Leu Gly Met Ile Pro Gly Gly  
 35 40 45

aaa gcc ttg caa ttt gtg ttt gat caa ttg tgg tct cgt ttg ggt gat 192  
 Lys Ala Leu Gln Phe Val Phe Asp Gln Leu Trp Ser Arg Leu Gly Asp  
 50 55 60

tct gga tgg agt gcg ttc atg gaa cat gtg gag gaa tta att gat act 240  
 Ser Gly Trp Ser Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr  
 65 70 75 80

aaa ata gaa ggg tat gca aaa aat aaa gcc tta tct gaa tta gca ggt 288  
 Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly  
 85 90 95

ata caa aga aac ctt gaa aca tat ata caa tta cgt aat gaa tgg gaa 336  
 Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu  
 100 105 110

aat gat atc gaa aac tca aag gct caa gtt aag gta gct aat tac tat 384  
 Asn Asp Ile Glu Asn Ser Lys Ala Gln Val Lys Val Ala Asn Tyr Tyr  
 115 120 125

gaa agt ctt gag cag gcg gtt gaa agg agt atg cct caa ttt gca gtg 432  
 Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val  
 130 135 140

TIC900.ST25.txt

ggg aat ttt gaa gta cca ctt tta act gtt tat gtg caa gct gct aat	480
Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn	
145 150 155 160	
ctt cat ata tta tta tta aga gat gtt cta att tat gga aag cgt tgg	528
Leu His Ile Leu Leu Leu Arg Asp Val Leu Ile Tyr Gly Lys Arg Trp	
165 170 175	
gga tgg tcg gag cag aaa att aaa att tat tat gat aga cag att aag	576
Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Arg Gln Ile Lys	
180 185 190	
tat acc cat gaa tac aca aat cat tgt gta aat tgg tat aat aaa gga	624
Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly	
195 200 205	
ctt gag aga tta aaa aat aaa ggt tct tct tat caa gat tgg tac aat	672
Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn	
210 215 220	
tat aat cgt ttc cgt aga gaa atg act ctt act gtt tta gat atc gtt	720
Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val	
225 230 235 240	
gct tta ttc ccg cac tat gat gta caa act tat cca ata aca acc gtt	768
Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val	
245 250 255	
gct cag cta aca agg gaa gtt tat acg gat cct tta ctt aat ttt aat	816
Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn	
260 265 270	
cct aaa tta cat tct gtg tct caa tta cct agt ttt agt gac atg gaa	864
Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu	
275 280 285	
aat gca aca att aga acc cca cat cta atg gaa ttt tta aga atg cta	912
Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu	
290 295 300	
aca att tat aca gat tgg tat agt gtg gga aga aac tat tat tgg gga	960
Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly	
305 310 315 320	
gga cat cgc gtg acg tct tac cat gta gga gga gag aat ata aga tca	1008
Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser	
325 330 335	
cct cta tat ggt aga gag gca aat caa gag gtt cct aga gat ttt tat	1056
Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr	
340 345 350	
ttt tat gga ccc gtt ttt aag acg tta tca aag ccg act cta aga cca	1104
Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro	
355 360 365	
tta cag cag cct gca cca gct cct ccc ttt aat tta cgt agc tta gag	1152
Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu	
370 375 380	
gga gta gaa ttc cac act cct aca ggt agt ttt ttg tat cgt gaa aga	1200
Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Leu Tyr Arg Glu Arg	
385 390 395 400	
gga tcg gta gat tct ttt aat gag tta ccg cct ttt aat cta gtt ggg	1248
Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Leu Val Gly	
405 410 415	
tta cct cat aag gta tac agt cac cgt tta tgt cat gca acg ttt gtt	1296

TIC900.ST25.txt

Leu	Pro	His	Lys	Val	Tyr	Ser	His	Arg	Leu	Cys	His	Ala	Thr	Phe	Val		
			420					425					430				
cgt	aaa	tct	ggg	acc	cct	tat	tta	aca	aca	ggt	gcc	atc	ttt	tct	tgg	1344	
Arg	Lys	Ser	Gly	Thr	Pro	Tyr	Leu	Thr	Thr	Gly	Ala	Ile	Phe	Ser	Trp		
		435					440					445					
aca	cat	cgt	agt	gct	gaa	gaa	acc	aat	aca	att	gaa	tca	aat	atc	att	1392	
Thr	His	Arg	Ser	Ala	Glu	Glu	Thr	Asn	Thr	Ile	Glu	Ser	Asn	Ile	Ile		
		450				455					460						
acg	caa	atc	ccg	tta	gta	aaa	gca	tat	caa	att	gga	tcg	ggc	act	act	1440	
Thr	Gln	Ile	Pro	Leu	Val	Lys	Ala	Tyr	Gln	Ile	Gly	Ser	Gly	Thr	Thr		
	465				470					475					480		
gta	agg	aaa	gga	cca	gga	ttc	aca	gga	ggg	gat	ata	ctt	cga	aga	aca	1488	
Val	Arg	Lys	Gly	Pro	Gly	Phe	Thr	Gly	Gly	Asp	Ile	Leu	Arg	Arg	Thr		
				485					490					495			
ggt	cct	gga	aca	ttt	gga	gat	atg	aga	ata	aat	att	aat	gca	cca	tta	1536	
Gly	Pro	Gly	Thr	Phe	Gly	Asp	Met	Arg	Ile	Asn	Ile	Asn	Ala	Pro	Leu		
			500				505						510				
tct	caa	aga	tat	cgt	gta	agg	att	cgt	tat	gct	tct	acg	aca	gat	tta	1584	
Ser	Gln	Arg	Tyr	Arg	Val	Arg	Ile	Arg	Tyr	Ala	Ser	Thr	Thr	Asp	Leu		
		515					520					525					
caa	ttt	ttc	acg	agc	att	aat	gga	acc	act	att	aat	atc	ggc	aat	ttc	1632	
Gln	Phe	Phe	Thr	Ser	Ile	Asn	Gly	Thr	Thr	Ile	Asn	Ile	Gly	Asn	Phe		
		530				535					540						
ccc	aaa	act	att	aat	aat	gtg	aat	cct	tta	agt	tct	gag	agc	tat	aga	1680	
Pro	Lys	Thr	Ile	Asn	Asn	Val	Asn	Pro	Leu	Ser	Ser	Glu	Ser	Tyr	Arg		
		545			550					555					560		
aca	gta	tct	ttt	agt	acg	cca	ttt	agt	ttt	tca	gat	gca	caa	agt	ata	1728	
Thr	Val	Ser	Phe	Ser	Thr	Pro	Phe	Ser	Phe	Ser	Asp	Ala	Gln	Ser	Ile		
				565					570					575			
ttt	aga	tta	ggg	ata	caa	gct	ttt	tct	gga	gtt	caa	gaa	gtt	tat	gtg	1776	
Phe	Arg	Leu	Gly	Ile	Gln	Ala	Phe	Ser	Gly	Val	Gln	Glu	Val	Tyr	Val		
			580				585						590				
gat	aaa	att	gaa	ttt	atc	cct	ttt	gaa	gta	gga	ttc	aat	aat	aca	atc	1824	
Asp	Lys	Ile	Glu	Phe	Ile	Pro	Phe	Glu	Val	Gly	Phe	Asn	Asn	Thr	Ile		
		595				600						605					
ctc	gag	gct	gaa	tat	aat	ctg	gaa	aga	gcg	cag	aag	gcg	gtg	aat	gcg	1872	
Leu	Glu	Ala	Glu	Tyr	Asn	Leu	Glu	Arg	Ala	Gln	Lys	Ala	Val	Asn	Ala		
		610				615					620						
ctg	ttt	acg	tct	aca	aac	caa	cta	ggg	cta	aaa	aca	aat	gta	acg	gat	1920	
Leu	Phe	Thr	Ser	Thr	Asn	Gln	Leu	Gly	Leu	Lys	Thr	Asn	Val	Thr	Asp		
					630					635					640		
tat	cat	att	gat	caa	gtg	tcc	aat	tta	gtt	acg	tat	tta	tcg	gat	gaa	1968	
Tyr	His	Ile	Asp	Gln	Val	Ser	Asn	Leu	Val	Thr	Tyr	Leu	Ser	Asp	Glu		
				645					650					655			
ttt	tgt	ctg	gat	gaa	aag	cga	gaa	ttg	tcc	gag	aaa	gtc	aaa	cat	gcg	2016	
Phe	Cys	Leu	Asp	Glu	Lys	Arg	Glu	Leu	Ser	Glu	Lys	Val	Lys	His	Ala		
			660					665					670				
aag	cga	ctc	agt	gat	gaa	cgc	aat	tta	ctc	caa	gat	tca	aat	ttc	aaa	2064	
Lys	Arg	Leu	Ser	Asp	Glu	Arg	Asn	Leu	Leu	Gln	Asp	Ser	Asn	Phe	Lys		
		675					680					685					
gac	att	aat	agg	caa	cca	gaa	cgt	ggg	tgg	ggc	gga	agt	aca	ggg	att	2112	
Asp	Ile	Asn	Arg	Gln	Pro	Glu	Arg	Gly	Trp	Gly	Ser	Thr	Gly	Ile			

TIC900.ST25.txt

690	695	700	
acc atc caa gga ggg gat gac gta ttt aaa gaa aat tac gtc aca cta Thr Ile Gln Gly Gly Asp Asp Val Phe Lys Glu Asn Tyr Val Thr Leu 705 710 715 720			2160
tca ggt acc ttt gat gag tgc tat cca aca tat ttg tat caa aaa atc Ser Gly Thr Phe Asp Glu Cys Tyr Pro Thr Tyr Leu Tyr Gln Lys Ile 725 730 735			2208
gat gaa tca aaa tta aaa gcc ttt acc cgt tat caa tta aga ggg tat Asp Glu Ser Lys Leu Lys Ala Phe Thr Arg Tyr Gln Leu Arg Gly Tyr 740 745 750			2256
atc gaa gat agt caa gac tta gaa atc tat tta att cgc tac aat gca Ile Glu Asp Ser Gln Asp Leu Glu Ile Tyr Leu Ile Arg Tyr Asn Ala 755 760 765			2304
aaa cat gaa aca gta aat gtg cca ggt acg ggt tcc tta tgg ccg ctt Lys His Glu Thr Val Asn Val Pro Gly Thr Gly Ser Leu Trp Pro Leu 770 775 780			2352
tca gcc caa agt cca atc gga aag tgt gga gag ccg aat cga tgc gcg Ser Ala Gln Ser Pro Ile Gly Lys Cys Gly Glu Pro Asn Arg Cys Ala 785 790 795 800			2400
cca cac ctt gaa tgg aat cct gac tta gat tgt tcg tgt agg gat gga Pro His Leu Glu Trp Asn Pro Asp Leu Asp Cys Ser Cys Arg Asp Gly 805 810 815			2448
gaa aag tgt gcc cat cat tcg cat cat ttc tcc tta gac att gat gta Glu Lys Cys Ala His His Ser His His Phe Ser Leu Asp Ile Asp Val 820 825 830			2496
gga tgt aca gac tta aat gag gac cta ggt gta tgg gtg atc ttt aag Gly Cys Thr Asp Leu Asn Glu Asp Leu Gly Val Trp Val Ile Phe Lys 835 840 845			2544
att aag acg caa gat ggg cac gca aga cta ggg aat cta gag ttt ctc Ile Lys Thr Gln Asp Gly His Ala Arg Leu Gly Asn Leu Glu Phe Leu 850 855 860			2592
gaa gag aaa cca tta gta gga gaa gcg cta gct cgt gtg aaa aga gcg Glu Glu Lys Pro Leu Val Gly Glu Ala Leu Ala Arg Val Lys Arg Ala 865 870 875 880			2640
gag aaa aaa tgg aga gac aaa cgt gaa aaa ttg gaa tgg gaa aca aat Glu Lys Lys Trp Arg Asp Lys Arg Glu Lys Leu Glu Trp Glu Thr Asn 885 890 895			2688
atc gtt tat aaa gag gca aaa gaa tct gta gat gct tta ttt gta aac Ile Val Tyr Lys Glu Ala Lys Glu Ser Val Asp Ala Leu Phe Val Asn 900 905 910			2736
tct caa tat gat caa tta caa gcg gat acg aat att gcc atg att cat Ser Gln Tyr Asp Gln Leu Gln Ala Asp Thr Asn Ile Ala Met Ile His 915 920 925			2784
gcg gca gat aaa cgt gtt cat agc att cga gaa gct tat ctg cct gag Ala Ala Asp Lys Arg Val His Ser Ile Arg Glu Ala Tyr Leu Pro Glu 930 935 940			2832
ctg tct gtg att ccg ggt gtc aat gcg gct att ttt gaa gaa tta gaa Leu Ser Val Ile Pro Gly Val Asn Ala Ala Ile Phe Glu Glu Leu Glu 945 950 955 960			2880
ggg cgt att ttc act gca ttc tcc cta tat gat gcg aga aat gtc att Gly Arg Ile Phe Thr Ala Phe Ser Leu Tyr Asp Ala Arg Asn Val Ile 965 970 975			2928

## TIC900.ST25.txt

```

aaa aat ggt gat ttt aat aat ggc tta tcc tgc tgg aac gtg aaa ggg      2976
Lys Asn Gly Asp Phe Asn Asn Gly Leu Ser Cys Trp Asn Val Lys Gly
          980                      985                      990

cat gta gat gta gaa gaa caa aac aac caa cgt tgc gtc ctt gtt gtt      3024
His Val Asp Val Glu Glu Gln Asn Asn Gln Arg Ser Val Leu Val Val
          995                      1000                      1005

ccg gaa tgg gaa gca gaa gtg tca caa gaa gtt cgt gtc tgt ccg      3069
Pro Glu Trp Glu Ala Glu Val Ser Gln Glu Val Arg Val Cys Pro
          1010                      1015                      1020

ggt cgt ggc tat atc ctt cgt gtc aca gcg tac aag gag gga tat      3114
Gly Arg Gly Tyr Ile Leu Arg Val Thr Ala Tyr Lys Glu Gly Tyr
          1025                      1030                      1035

gga gaa ggt tgc gta acc att cat gag atc gag aac aat aca gac      3159
Gly Glu Gly Cys Val Thr Ile His Glu Ile Glu Asn Asn Thr Asp
          1040                      1045                      1050

gaa ctg aag ttt agc aac tgc gta gaa gag gaa atc tat cca aat      3204
Glu Leu Lys Phe Ser Asn Cys Val Glu Glu Glu Ile Tyr Pro Asn
          1055                      1060                      1065

aac acg gta acg tgt aat gat tat act gta aat caa gaa gaa tac      3249
Asn Thr Val Thr Cys Asn Asp Tyr Thr Val Asn Gln Glu Glu Tyr
          1070                      1075                      1080

gga ggt gcg tac act tct cgt aat cga gga tat aac gaa gct cct      3294
Gly Gly Ala Tyr Thr Ser Arg Asn Arg Gly Tyr Asn Glu Ala Pro
          1085                      1090                      1095

tcc gta cca gct gat tat gcg tca gtc tat gaa gaa aaa tcg tat      3339
Ser Val Pro Ala Asp Tyr Ala Ser Val Tyr Glu Glu Lys Ser Tyr
          1100                      1105                      1110

aca gat gga cga aga gag aat cct tgt gaa ttt aac aga ggg tat      3384
Thr Asp Gly Arg Arg Glu Asn Pro Cys Glu Phe Asn Arg Gly Tyr
          1115                      1120                      1125

agg gat tac acg cca cta cca gtt ggt tat gtg aca aaa gaa tta      3429
Arg Asp Tyr Thr Pro Leu Pro Val Gly Tyr Val Thr Lys Glu Leu
          1130                      1135                      1140

gaa tac ttc cca gaa acc gat aag gta tgg att gag att gga gaa      3474
Glu Tyr Phe Pro Glu Thr Asp Lys Val Trp Ile Glu Ile Gly Glu
          1145                      1150                      1155

acg gaa gga aca ttt atc gtg gac agc gtg gaa tta ctc ctt atg      3519
Thr Glu Gly Thr Phe Ile Val Asp Ser Val Glu Leu Leu Leu Met
          1160                      1165                      1170

gag gaa
Glu Glu      3525
          1175

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&lt;210&gt; 32

&lt;211&gt; 1175

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;400&gt; 32

## TIC900.ST25.txt

Met Asn Ser Lys Glu His Asp Tyr Leu Lys Val Cys Asn Asp Leu Ser  
 1 5 10 15  
 Asp Ala Asn Ile Asn Met Glu Arg Phe Asp Lys Asn Asp Ala Leu Glu  
 20 25 30  
 Ile Gly Met Ser Ile Val Ser Glu Leu Leu Gly Met Ile Pro Gly Gly  
 35 40 45  
 Lys Ala Leu Gln Phe Val Phe Asp Gln Leu Trp Ser Arg Leu Gly Asp  
 50 55 60  
 Ser Gly Trp Ser Ala Phe Met Glu His Val Glu Glu Leu Ile Asp Thr  
 65 70 75 80  
 Lys Ile Glu Gly Tyr Ala Lys Asn Lys Ala Leu Ser Glu Leu Ala Gly  
 85 90 95  
 Ile Gln Arg Asn Leu Glu Thr Tyr Ile Gln Leu Arg Asn Glu Trp Glu  
 100 105 110  
 Asn Asp Ile Glu Asn Ser Lys Ala Gln Val Lys Val Ala Asn Tyr Tyr  
 115 120 125  
 Glu Ser Leu Glu Gln Ala Val Glu Arg Ser Met Pro Gln Phe Ala Val  
 130 135 140  
 Gly Asn Phe Glu Val Pro Leu Leu Thr Val Tyr Val Gln Ala Ala Asn  
 145 150 155 160  
 Leu His Ile Leu Leu Leu Arg Asp Val Leu Ile Tyr Gly Lys Arg Trp  
 165 170 175  
 Gly Trp Ser Glu Gln Lys Ile Lys Ile Tyr Tyr Asp Arg Gln Ile Lys  
 180 185 190  
 Tyr Thr His Glu Tyr Thr Asn His Cys Val Asn Trp Tyr Asn Lys Gly  
 195 200 205  
 Leu Glu Arg Leu Lys Asn Lys Gly Ser Ser Tyr Gln Asp Trp Tyr Asn  
 210 215 220  
 Tyr Asn Arg Phe Arg Arg Glu Met Thr Leu Thr Val Leu Asp Ile Val  
 225 230 235 240  
 Ala Leu Phe Pro His Tyr Asp Val Gln Thr Tyr Pro Ile Thr Thr Val  
 245 250 255  
 Ala Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Leu Asn Phe Asn  
 260 265 270

## TIC900.ST25.txt

Pro Lys Leu His Ser Val Ser Gln Leu Pro Ser Phe Ser Asp Met Glu  
275 280 285

Asn Ala Thr Ile Arg Thr Pro His Leu Met Glu Phe Leu Arg Met Leu  
290 295 300

Thr Ile Tyr Thr Asp Trp Tyr Ser Val Gly Arg Asn Tyr Tyr Trp Gly  
305 310 315 320

Gly His Arg Val Thr Ser Tyr His Val Gly Gly Glu Asn Ile Arg Ser  
325 330 335

Pro Leu Tyr Gly Arg Glu Ala Asn Gln Glu Val Pro Arg Asp Phe Tyr  
340 345 350

Phe Tyr Gly Pro Val Phe Lys Thr Leu Ser Lys Pro Thr Leu Arg Pro  
355 360 365

Leu Gln Gln Pro Ala Pro Ala Pro Pro Phe Asn Leu Arg Ser Leu Glu  
370 375 380

Gly Val Glu Phe His Thr Pro Thr Gly Ser Phe Leu Tyr Arg Glu Arg  
385 390 395 400

Gly Ser Val Asp Ser Phe Asn Glu Leu Pro Pro Phe Asn Leu Val Gly  
405 410 415

Leu Pro His Lys Val Tyr Ser His Arg Leu Cys His Ala Thr Phe Val  
420 425 430

Arg Lys Ser Gly Thr Pro Tyr Leu Thr Thr Gly Ala Ile Phe Ser Trp  
435 440 445

Thr His Arg Ser Ala Glu Glu Thr Asn Thr Ile Glu Ser Asn Ile Ile  
450 455 460

Thr Gln Ile Pro Leu Val Lys Ala Tyr Gln Ile Gly Ser Gly Thr Thr  
465 470 475 480

Val Arg Lys Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Thr  
485 490 495

Gly Pro Gly Thr Phe Gly Asp Met Arg Ile Asn Ile Asn Ala Pro Leu  
500 505 510

Ser Gln Arg Tyr Arg Val Arg Ile Arg Tyr Ala Ser Thr Thr Asp Leu  
515 520 525

Gln Phe Phe Thr Ser Ile Asn Gly Thr Thr Ile Asn Ile Gly Asn Phe  
530 535 540

Pro Lys Thr Ile Asn Asn Val Asn Pro Leu Ser Ser Glu Ser Tyr Arg

TIC900.ST25.txt

545		550		555		560
Thr Val Ser Phe Ser Thr Pro Phe Ser Phe Ser Asp Ala Gln Ser Ile						
		565		570		575
Phe Arg Leu Gly Ile Gln Ala Phe Ser Gly Val Gln Glu Val Tyr Val						
		580		585		590
Asp Lys Ile Glu Phe Ile Pro Phe Glu Val Gly Phe Asn Asn Thr Ile						
		595		600		605
Leu Glu Ala Glu Tyr Asn Leu Glu Arg Ala Gln Lys Ala Val Asn Ala						
		610		615		620
Leu Phe Thr Ser Thr Asn Gln Leu Gly Leu Lys Thr Asn Val Thr Asp						
		625		630		635
Tyr His Ile Asp Gln Val Ser Asn Leu Val Thr Tyr Leu Ser Asp Glu						
		645		650		655
Phe Cys Leu Asp Glu Lys Arg Glu Leu Ser Glu Lys Val Lys His Ala						
		660		665		670
Lys Arg Leu Ser Asp Glu Arg Asn Leu Leu Gln Asp Ser Asn Phe Lys						
		675		680		685
Asp Ile Asn Arg Gln Pro Glu Arg Gly Trp Gly Gly Ser Thr Gly Ile						
		690		695		700
Thr Ile Gln Gly Gly Asp Asp Val Phe Lys Glu Asn Tyr Val Thr Leu						
		705		710		715
Ser Gly Thr Phe Asp Glu Cys Tyr Pro Thr Tyr Leu Tyr Gln Lys Ile						
		725		730		735
Asp Glu Ser Lys Leu Lys Ala Phe Thr Arg Tyr Gln Leu Arg Gly Tyr						
		740		745		750
Ile Glu Asp Ser Gln Asp Leu Glu Ile Tyr Leu Ile Arg Tyr Asn Ala						
		755		760		765
Lys His Glu Thr Val Asn Val Pro Gly Thr Gly Ser Leu Trp Pro Leu						
		770		775		780
Ser Ala Gln Ser Pro Ile Gly Lys Cys Gly Glu Pro Asn Arg Cys Ala						
		785		790		795
Pro His Leu Glu Trp Asn Pro Asp Leu Asp Cys Ser Cys Arg Asp Gly						
		805		810		815
Glu Lys Cys Ala His His Ser His His Phe Ser Leu Asp Ile Asp Val						
		820		825		830

## TIC900.ST25.txt

Gly Cys Thr Asp Leu Asn Glu Asp Leu Gly Val Trp Val Ile Phe Lys  
 835 840 845  
 Ile Lys Thr Gln Asp Gly His Ala Arg Leu Gly Asn Leu Glu Phe Leu  
 850 855 860  
 Glu Glu Lys Pro Leu Val Gly Glu Ala Leu Ala Arg Val Lys Arg Ala  
 865 870 875 880  
 Glu Lys Lys Trp Arg Asp Lys Arg Glu Lys Leu Glu Trp Glu Thr Asn  
 885 890 895  
 Ile Val Tyr Lys Glu Ala Lys Glu Ser Val Asp Ala Leu Phe Val Asn  
 900 905 910  
 Ser Gln Tyr Asp Gln Leu Gln Ala Asp Thr Asn Ile Ala Met Ile His  
 915 920 925  
 Ala Ala Asp Lys Arg Val His Ser Ile Arg Glu Ala Tyr Leu Pro Glu  
 930 935 940  
 Leu Ser Val Ile Pro Gly Val Asn Ala Ala Ile Phe Glu Glu Leu Glu  
 945 950 955 960  
 Gly Arg Ile Phe Thr Ala Phe Ser Leu Tyr Asp Ala Arg Asn Val Ile  
 965 970 975  
 Lys Asn Gly Asp Phe Asn Asn Gly Leu Ser Cys Trp Asn Val Lys Gly  
 980 985 990  
 His Val Asp Val Glu Glu Gln Asn Asn Gln Arg Ser Val Leu Val Val  
 995 1000 1005  
 Pro Glu Trp Glu Ala Glu Val Ser Gln Glu Val Arg Val Cys Pro  
 1010 1015 1020  
 Gly Arg Gly Tyr Ile Leu Arg Val Thr Ala Tyr Lys Glu Gly Tyr  
 1025 1030 1035  
 Gly Glu Gly Cys Val Thr Ile His Glu Ile Glu Asn Asn Thr Asp  
 1040 1045 1050  
 Glu Leu Lys Phe Ser Asn Cys Val Glu Glu Glu Ile Tyr Pro Asn  
 1055 1060 1065  
 Asn Thr Val Thr Cys Asn Asp Tyr Thr Val Asn Gln Glu Glu Tyr  
 1070 1075 1080  
 Gly Gly Ala Tyr Thr Ser Arg Asn Arg Gly Tyr Asn Glu Ala Pro  
 1085 1090 1095

## TIC900.ST25.txt

Ser	Val	Pro	Ala	Asp	Tyr	Ala	Ser	Val	Tyr	Glu	Glu	Lys	Ser	Tyr
1100						1105					1110			
Thr	Asp	Gly	Arg	Arg	Glu	Asn	Pro	Cys	Glu	Phe	Asn	Arg	Gly	Tyr
1115						1120					1125			
Arg	Asp	Tyr	Thr	Pro	Leu	Pro	Val	Gly	Tyr	Val	Thr	Lys	Glu	Leu
1130						1135					1140			
Glu	Tyr	Phe	Pro	Glu	Thr	Asp	Lys	Val	Trp	Ile	Glu	Ile	Gly	Glu
1145						1150					1155			
Thr	Glu	Gly	Thr	Phe	Ile	Val	Asp	Ser	Val	Glu	Leu	Leu	Leu	Met
1160						1165					1170			
Glu	Glu													
1175														